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DESIGN AND TEST OF A BORON - ALUMINUM HIGH TEMPERATURE WING

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The feasibility of utilizing the high buckling stability characteristics of boron - aluminum advanced composite material in a simple, low-cost spar-rib-skin construction for a thin airfoil structure was investigated for high temperature application up to 589 degrees K.

The design concept developed consists of boron-aluminum skins, to carry the primary bending and torsion loads, mechanically fastened to a light gage steel sub-structure, which resists transverse shear and stabilizes

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the skins. The viability of the concept depends on whether this stabilization of the skin material can be accomplished with a practical number and spacing of substructure elements.

A weight saving of one third in comparison to the production article is projected in this boron-aluminum version of the BYM-34E wing. A major wing subcomponent was fabricated and static tested to validate the structural adequacy of the overall design.

SUMMARY

The feasibility of utilizing the high buckling stability characteristics of boron-aluminum material in a simple, low-cost spar-rib-skin construction for a thin airfoil structure has been investigated for high temperature application up to 589 degrees K. A weight saving of 30% in comparison to the production article is projected in this boron-aluminum version of the BQM-34E wing, while increasing its temperature capability to 589 degrees K.

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INTRODUCTION

The emphasis in current Naval aircraft structural development is on reduction of weight and cost and improvement of performance. In addition, as flight speeds increase and lift augmentation and thrust vectoring are utilized in Vertical-Short Takeoff/Landing (V/STOL) aircraft, high-temperature structures may be required to withstand the effects of aerodynamic heating and hot exhaust gases. Significant achievements have been made in reducing structural weight by utilizing composite materials, i.e., boron or graphite-epoxy, for moderate-temperature applications, up to 450 degrees K. Similar improvements for higher service temperatures, up to 589 degrees K, require the use of graphite/polymide or boron-aluminum materials.

Despite its current high cost, which is expected to be significantly reduced as usage increases, boron-aluminum has many advantages. It has higher longitudinal stiffness and strength than steel and greater room-temperature transverse and shear stiffness than titanium, while its density is less than that of aluminum. In addition, it has high bearing strength and retains the high thermal and electrical conductivity and weldability of its aluminum matrix.

The objectives of this program were to develop a high-temperature (589 degrees K) composite structural design applicable to thin lifting surfaces, and to demonstrate the concept in a primary aircraft structural component.

Normal design practice for a thin aerodynamic surface, which is being considered here, would be to use full depth honeycomb sandwich construction. However, for high temperature applications, bonding of the skins to the honeycomb core becomes a problem. It was the intent of this program, therefore, to investigate the feasibility of stabilizing the skins with discrete stiffeners at a reasonable cost and weight.

The design which was developed in this program consists of variable thickness boron-aluminum skins, to carry the primary bending and torsion loads, mechanically fastened to a light stainless steel substructure, which resists transverse shear and stabilizes the skins. The viability of the concept depends on whether this stabilization of the skin can be accomplished with a practical number and spacing of substructure elements. Fabrication cost and complexity were minimized by using simple shapes and conventional metal forming and fastening methods. The demonstration article chosen is the wing of the BQM-34E remote-piloted vehicle whose maximum thickness is only three percent of its chord, Figure 1.

Information from material and structural tests has been utilized in the evolution of the wing design. Experimentally verified material stiffness and strength properties have been incorporated into the analysis, together with buckling criteria which have been modified as a result of subcomponent development tests.

DESIGN REQUIREMENTS AND CONSIDERATIONS

The design of the B/Al version of the BQM-34E wing is based on production wing static strength, stability and flutter requirements. The critical flight load condition dictating the design, results from a 5g symmetric pull-up at R.T. An additional design requirement, a 4g symmetric pull up at 589°K, was specified for the B/Al prototype wing.

The high temperature requirement necessitated the selection of thermally compatable materials to be used in the wing design. Specifically, the coefficient of thermal expansion for the light gage metal supporting substructure had to closely match that of the B/Al skins to minimize thermal stresses at elevated temperatures. Stainless steel (TH1050) which is structurally adequate at 589°K and thermally compatible with the B/Al laminate skins was selected as a satisfactory material for the substructure. Both materials have a thermal expansion coefficient of approximately 11.0 μ m/m °C.

Stiffness requirements dictate that the wing exhibit flutter free behavior in the flight regime ranging from Mach 1.1 at sea level to Mach 3.0 at 23600 m (60000 ft.).

B/Al WING - FINAL DESIGN OVERVIEW

WING CONFIGURATION

The profile of the B/Al version of the BQM-34E wing duplicates that of the production metal wing. A low cost design approach was followed by approximating the actual wing aerodynamic contour with a simplified wedge shape. Referring to Figure 2, all chordwise wing sections are constant depth closed out with simple wedge leading and trailing edge pieces. Spanwise, the wing tapers linearly from root to tip. Across the center wing box the skins are allowed to assume their natural pure bending curvatures.

SKINS

The basic skin configuration for the B/Al wing design, shown in Figure 3, consists of B/Al tension and compression skin pieces with tailored (0°, ± 45°, 90°) ply construction. Because of the B/Al laminate fabrication diffusion bonding process which involves a multi-step pressing operation, the B/Al main wing skins were kept to a manageable size by incorporating a wing center line skin splice. The joining is accomplished with a single stainless steel splice plate (2.54 mm, (.1 in.)) and a double row of mechanical blind fasteners (4.76 mm (3/16 in.)). Also, separate B/Al trailing edge pieces and stainless steel sheet leading edge pieces are spliced to the main skins along substructure spars.

Both main skins are step tapered, with gradual ply build up toward the wing centerline, optimized to satisfy critical flight load requirements. The final laminate design for the skins was arrived at through iterative stress analysis and experimental specimen and subcomponent testing. The final ply scheme for the tension and compression B/Al skins is schematically

shown in Figures 4 and 5. Skin laminate design drawings are attached at the end of the report. Both tension and compression skins are four plies (.108 cm) at the wing tip, with ply build up to 13 plies (.352 cm) and 16 plies (.168 cm) respectively, across the overall wing box. The extra plies are added to the compression skin to satisfy buckling requirements. Also, both skins are locally built up to 24 plies (.640 cm), in the area of high stress adjacent to the aft attachment of the wing.

SUBSTRUCTURE

Considering only half the wing, referring to Figure 6, the main elements of the light gage stainless steel substructure include seven spars, a tip and root rib and five wing/fuselage bolt attachment fittings. The spar and rib elements are mainly channels, with gages varying from .052 cm (.020 in.) to .127 cm (.050 in.) depending on design requirements. The spar elements run along constant percent of chord lines and are tapered linearly from wing root to tip. The five wing/fuselage attachment fittings tie the substructure elements together along the wing/fuselage bolt attachment lines. Forward spars extend from the fittings across the wing box. The flanges of the wing box spars are separate angle pieces rolled to match the curvature of the skins. The angles are internally spot welded to web sheets to form channel elements.

FASTENING

Fastening of all the structural elements is accomplished with rivets. Standard stainless steel .476 cm (3/16 in.) dia. solid rivets in conjunction with shear clips are used to fasten the substructure elements together. Fastening of the B/Al skins to the substructure is accomplished with .476 cm (3/16 in.) dia. stainless steel blind fasteners. Double rows of blind fasteners in conjunction with .476 cm (3/16 in.) stainless steel plates, as shown in Figure 7, are used to splice the upper and lower half skins together at the wing center line. Similar splice designs are used to connect leading and trailing edge pieces to the main wing skins.

ANALYSIS

NASTRAN

Stress analysis of the B/Al wing design was accomplished by constructing a finite element model, and running a series of NASTRAN static analyses, for the critical 5g maneuver load condition, optimizing the design. The tension and compression wing skins were modeled with quadrilateral and triangular plate elements which have both inplane and bending stiffness. B/Al laminate constitutive relationships used in the NASTRAN analysis were determined from basic laminate theory using the material property constants of unidirectional B/Al. The substructure spars and ribs were modeled with bar elements with shear properties built in. Because of wing symmetry only half of the wing needed to be modeled. The model configuration including grid point and element identification is shown in Figures 8 through 10.

Bulk data for the NASTRAN model is included in Appendix A. Maximum tension and compression skin limit load stresses obtained from NASTRAN for the final laminate design are shown in Figures 11 and 12 respectively.

BUCKLING ANALYSIS

The boron aluminum wing compression skin was sized to satisfy buckling requirements by using NASTRAN stresses in conjunction with standard orthotropic simply supported plate theory. Since the skins are mechanically fastened to the substructure the simply supported boundary condition is a conservative assumption. Buckling loads were calculated for the most highly stressed compression skin NASTRAN elements in each discrete skin gage region. Several iterative cycles were needed to size the skin for buckling stability. Table 1 lists the final results for the compression skin buckling analysis. The critical buckling load due to compression, N_{xcr}, and the critical buckling load due to shear loading, N_{xycr}, are compared with the loading the laminate must withstand at design ultimate, N_{xult} and N_{xyult}. Margins of safety in buckling due to combined compression and shear loading were calculated using the relation

$$M.S. = \frac{2}{R_L + \sqrt{R_L^2 + 4R_S^2}} - 1$$

where:

$$R_L = \frac{N_{xult}}{N_{xcr}}$$

$$R_S = \frac{N_{xyult}}{Nxycr}$$

Although the margins of safety for ultimate load were slightly negative for several of the compression skin elements, they were considered acceptable at this point since the analysis was conservative and testing was planned to assess the accuracy of the analysis method. Also, when considering design limit loading, all margins of safety would be positive.

DYNAMIC ANALYSIS

A NASTRAN real eigenvalue run was made to obtain normal mode data for the B/Al wing design. Based on the results of this run and the fact that the B/Al wing design is both stiffer and has less mass than the production wing, the wing was assumed to be flutter free and a rigorous flutter analysis of the B/Al wing was not included in the design cycle.

EXPERIMENTAL TESTING

INTRODUCTION

In order to experimentally validate design procedures and establish a design criteria on which to base the final B/Al full scale wing design, a

series of coupon specimens and two major subcomponents were fabricated and tested. The testing phase of the program included only room temperature testing. This was justified because the critical flight load condition is the R.T. 5g maneuver. To save on fabrication cost 4130 steel was substituted for the stainless, in all subcomponent substructural members.

COUPON SPECIMENS

A number of B/Al coupon specimens including tension and rail shear were tested to validate the material properties used in the design of the full-scale wing. The specimen configurations are shown in Figure 13. A summary of the coupon test results run at NADC are shown in tables 2 through 4. Results of tensile specimen tests run by Americom, Inc. on the basic B/Al laminates used in the tension and compression wing skin design are shown in Table 5. Results of these tests were satisfactory, ultimate loads and material properties in some cases were slightly lower than available standard B/Al properties.

BOX BEAM SUBCOMPONENT

Design

In order to evaluate the manufacturing processes intended for construction of the full-scale wing and to verify the buckling capability of the B/Al compression skin, a box beam specimen representative of the aft wing box region as shown in Figure 14 was designed, fabricated and tested. The aft wing box region was selected for experimental investigation because the compression skin is buckling critical in this area and a box beam type specimen presents minimum fabrication complications and can be symmetrically loaded to facilitate testing.

The box beam specimen, shown in Figure 15, which has a span of 107 cm (42 in.) and a width of 18 cm (7 in.) incorporates the same basic design features as found in the actual aft wing box. The detailed engineering drawing of the box beam is included in the foldouts. The box beam center span between the attachment bolt hole center lines, like the actual wing, is 45.7 cm. (18 in.). The center span substructure channels are constructed of 7.62 mm (.030 in.) rolled 4130 steel angles, to form constant radius flanges, spot welded to a 12.70 mm (.050 in.) 4130 web sheet. The box beam extension arm substructure channels are brake formed and follow a constant spanwise taper. The box beam incorporates eight load fittings, four representative of the aft wing/fuselage attachment fittings and four outer corner load fittings for testing. The compression skin is .267 cm, 10 ply boron/aluminum with $0^\circ \pm 45^\circ, 0^\circ \pm 45^\circ, 0^\circ$ ply orientation. To reduce cost the tension skin is .254 cm (.1 in.) gage stainless steel since only the buckling capability of the B/Al compression skin is of interest. All box beam structural elements and skins are assembled with mechanical fasteners.

Instrumentation

The boron/aluminum wing box beam specimen was instrumented with axial strain gages and strain rosettes as diagrammed in Figure 16. The gages were positioned to monitor spanwise bending and shear stress distribution in both tension and compression skins, stress concentration around the bolt holes and initiation of buckling in the compression skin.

Loading

The box beam was loaded at the eight load fitting bolt holes to produce a condition of pure bending in the center section. This condition with total ultimate applied load of 38.6 kN approximates the critical 5g maneuver load condition. The box beam test set up is shown in Figure 17.

Test

After several initial load cycles to 30% D.L.L to exercise the specimen a run to failure was made. Buckling of the B/Al compression skin initiated at a load of 288.0 kN comparing well with analysis based on simply supported orthotropic plate theory which predicted initiation of buckling at a load of 314.1 kN. The early onset of buckling may be attributed to actual B/Al compression skin material properties being somewhat lower than those used in the analysis. The specimen continued to sustain increased loading after onset of buckling up to 612.9 kN, at which catastropic failure occurred. The failure is shown in Figure 18. The results of this test were used to substantiate the full-scale compression wing skin design for buckling stability.

WING SUBCOMPONENT

Design

In order to evaluate the behavior of the wing design in the area of highest tensile and compressive stresses, which is adjacent to the aft wing-to-fuselage attachment location, a second development test specimen was designed, fabricated, and tested. This was a subcomponent, outlined in Figure 19, which contained significant design details of the actual wing, with some minor alterations to simplify its fabrication and to provide test load application.

The tension and compression B/Al skins maintain constant ply thickness of 13 and 16 plies respectively over the entire subcomponent surface area. The ply orientation scheme of the skins is identical to that of the full-scale wing's center section. The boron-aluminum skins were fabricated by Amercom, Inc., including the countersunk holes which were made by electric discharge machining, Figure 20.

The substructure parts shown in Figure 21 which stabilize the skins at a constant depth of 4.10 cm were made and assembly operations performed at NAVAIRDEVCEN. At the subcomponent root end the wing center section skin splices are accurately represented by double row rivet attachment to .476 cm (3/16 in.) steel splice plates. These splice plates are supported

by a solid aluminum spacer bar which allows the complete assembly to be clamped for a cantilever test load set up. At the subcomponent free end, a 2.54 cm (1.0 in.) Al plate is fixed for test load application. The complete subcomponent assembly is pictured in Figure 22. The detail design drawings for the subcomponent are attached in the foldouts.

Test Loading and Instrumentation

Test loads to be applied to the B/Al wing subcomponent were determined with the aid of a NASTRAN loads analysis. This analysis resulted in a set of test loads which when applied to the subcomponent produced a stress field in the B/Al skins similar to the stress field present in the actual full scale wing skins when subjected to the 5g maneuver load condition.

The test set up shown in Figure 23 consists of the subcomponent mounted to a strongback testing facility; loads were applied to the specimen through two independent sets of wiffle trees by manually operated hydraulic jacks.

The subcomponent was instrumented with 73 strain gages and three deflection transducers. The gages monitor critically stressed regions on both tension and compression skins and are also paired internally and externally on the compression skin to check for initiation of buckling as shown in Figures 24 through 26.

The test load procedure was as follows:

1. Apply 30% D.L.L., 10% increments, check strain and deflection data.

2. Apply 50% D.L.L., 10% increments, check strain and deflection data, re-apply 50% D.L.L., 2 cycles.

3. Apply 100% D.L.L., 10% increments, check strain and deflection data, re-apply 100% D.L.L., 4 cycles.

Test Results

After initial loading to 30% D.L.L. strain and deflection data was plotted. Referring to Figures 27 and 28, typical strain and deflection vs. load plots from the test data reveal nonlinear, inelastic behavior exhibited by the B/Al skins. The second applied load cycle to 50% D.L.L. yielded approximately linear elastic response in the skins up to the previously applied load level (30% D.L.L.). Subsequent loading above the 30% D.L.L. level resulted in a continuation of the nonlinear inelastic behavior in the skins. Additional load cycles to the 50% D.L.L. level yielded repeatable linear elastic response in the skins.

The initial run to 100% D.L.L. resulted in a failure at the 70% D.L.L. level. Again nonlinear inelastic behavior was exhibited by the skins once the previously high loading point was exceeded (50% D.L.L.). The failure occurred in the tension skin, a crack initiating at the corner radius, just outboard of the aft bolt hole, and propagating across the skin following a

path of minimum net section (see Figure 29).

This failure can be attributed to stress concentrations present at the corner radius which are amplified by the close proximity of a fastener. Strain levels monitored on both tension and compression skins at time of failure were similar to those predicted by analysis except in the local failure area. In addition, the load-strain and load-strain and load-deflection behavior of the specimen was highly non-linear, and large permanent deformations were present after testing at various load levels under the failure load.

Stress strain behavior of a tensile coupon cut from the same laminate as the B/Al subcomponent tensile skin is shown in Figure 30. Stress/strain data for the 6061 Al matrix is also plotted. The early onset of plasticity in the Al matrix appears to have a significant influence on the overall stress/strain response of the B/Al composite when subjected to loading. The B/Al laminate begins exhibiting inelastic behavior at approximately the same strain level that the 6061 Al becomes plastic.

FINAL WING DESIGN CRITERIA

Based on the results of this test, a review of stress-strain behavior of tensile specimens and some limited data on stress concentration in drilled holes, the following critieria was formulated for final design of the wing skins:

Nominal limit load stress $\leq$ 360 MPa

Strains at limit load $\leq$ 2000 μ m/m

Stress concentration factor = 1.5

It was the above design criteria which dictated the need for additional B/Al ply build up to 24 plies, in the aft attachment region, on both tension and compression wing skins to relieve stress concentrations due to attachment holes.

Final analysis using the NASTRAN finite element program was performed to confirm the stress and strain levels in the wing. The estimated total weight is 52.8 kg, 30 percent less than that of the production wing, which was designed for only 422 degrees K. Of the total weight, the skins comprise 26.3 kg, or 50 percent. The leading edge, substructure, centerline splice, and rivets and fittings weigh 5.9, 28.3, 3.2 and 4.5 kg respectively.

CONCLUSIONS

In this program, a design has been developed using metal-matrix composites to achieve high temperature capability and reduced weight. Much has been learned about the behavior of boron-aluminum and critieria for its use in aircraft structures. Additional development work would be required before it could be incorporated into an actual system. In particular, more data is

needed on fatigue and on stress concentrations in loaded holes both at low and high temperatures; basic fracture characterization should be performed; laminate tailoring should be investigated to minimize these effects as well as those due to the non-linear behavior and permanent deformations.

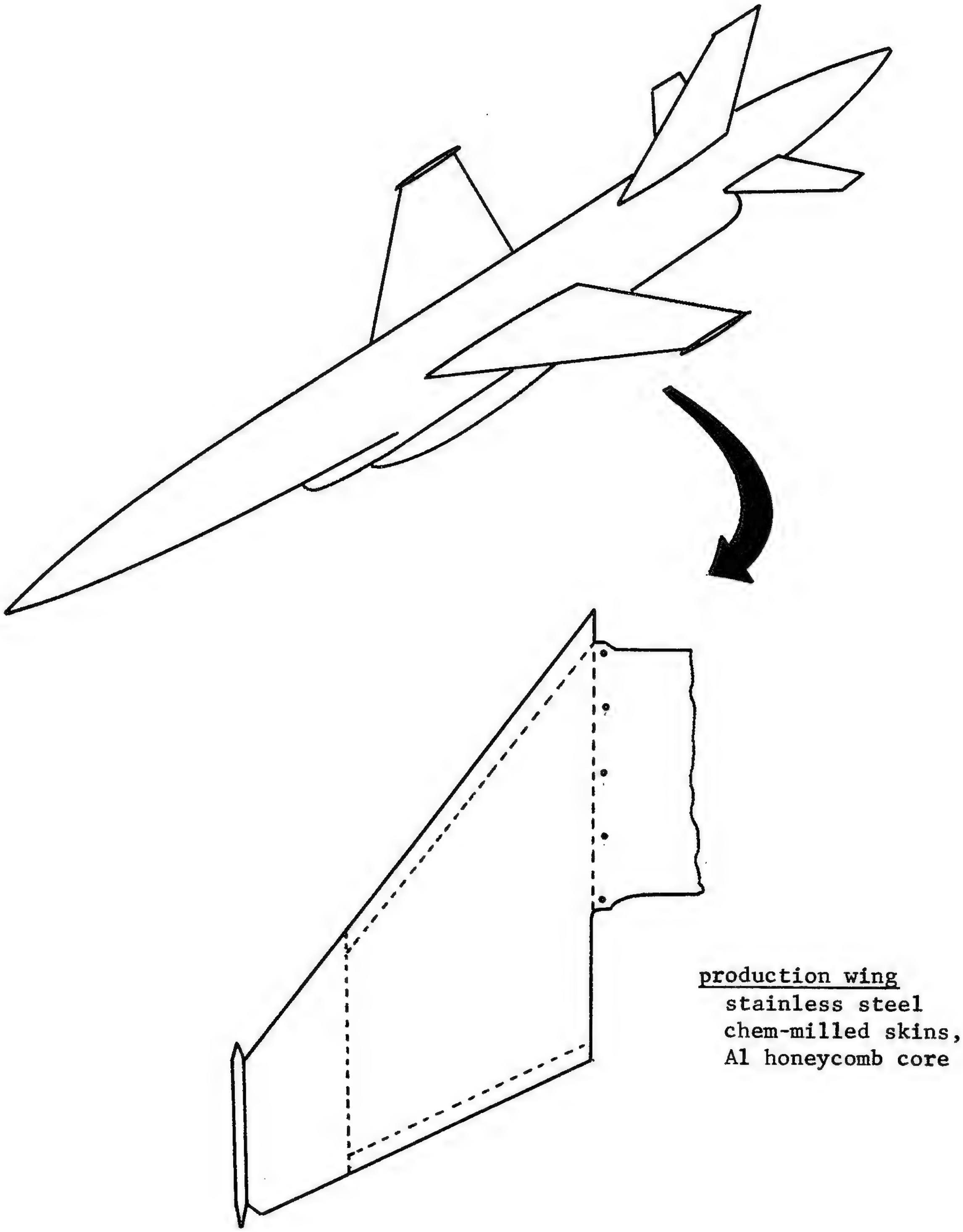


FIGURE 1 - BQM-34E RPV

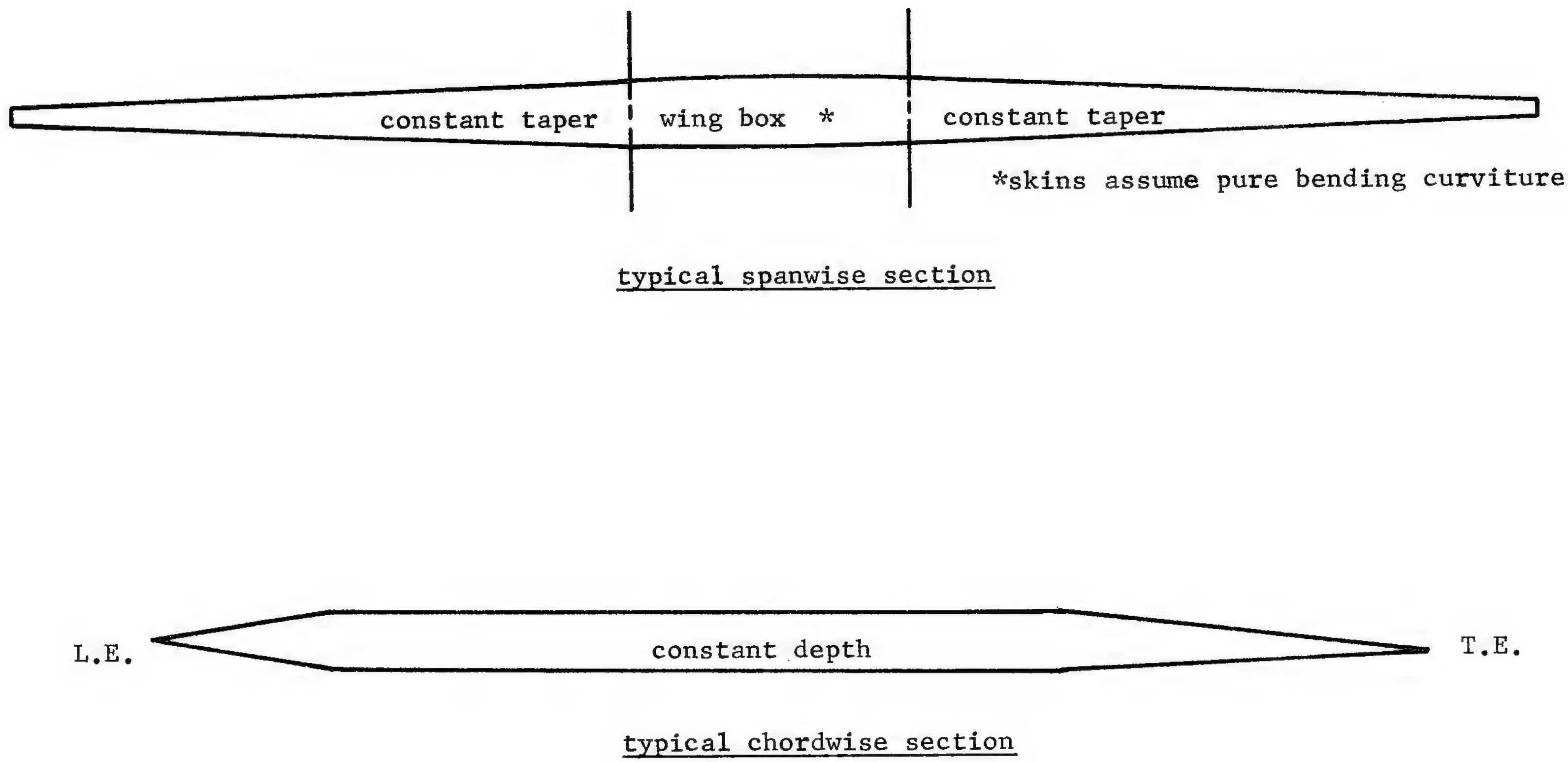


FIGURE 2 - B/Al WING SECTION GEOMETRY

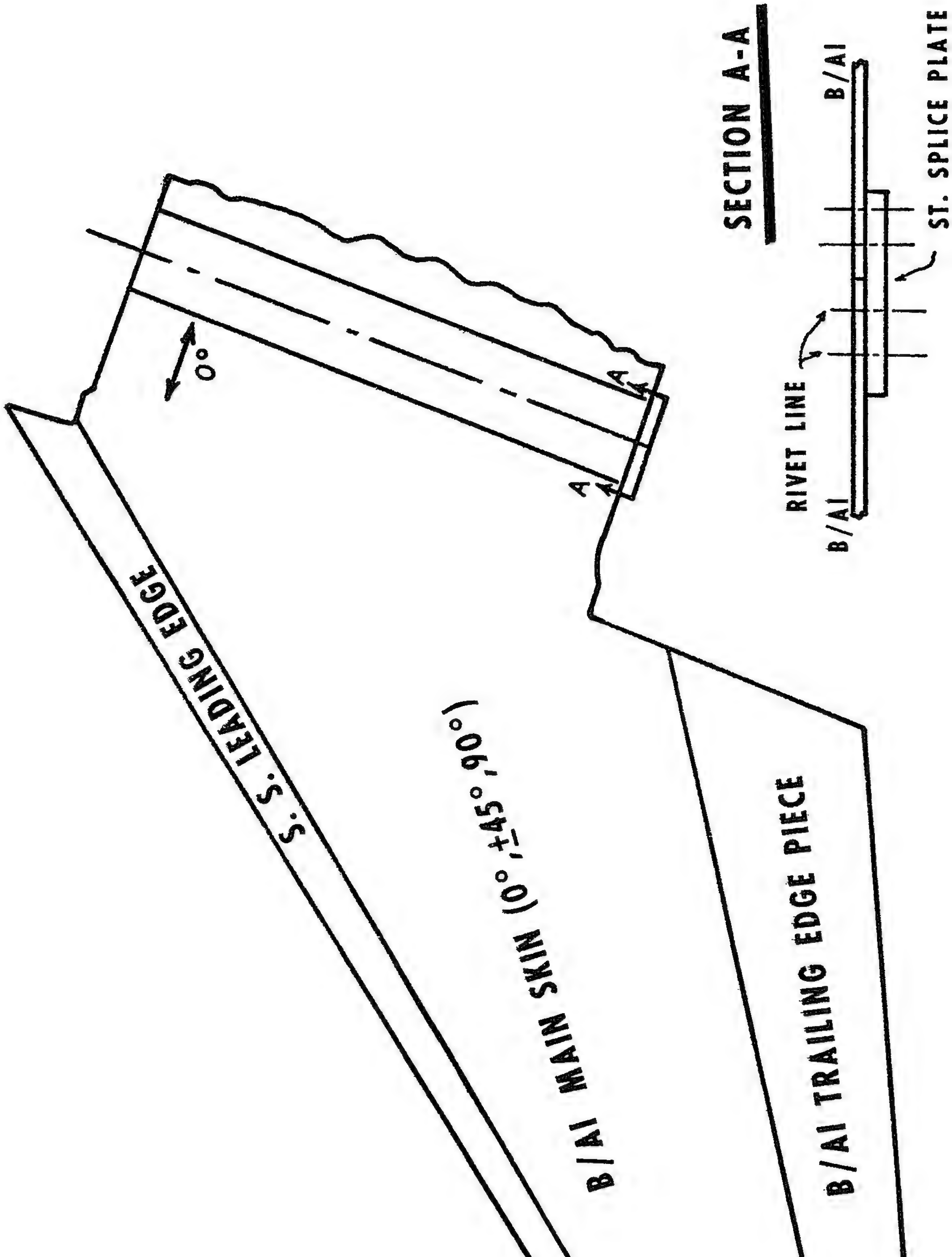


FIGURE 3 - B/Al WING BASIC SKIN CONFIGURATION

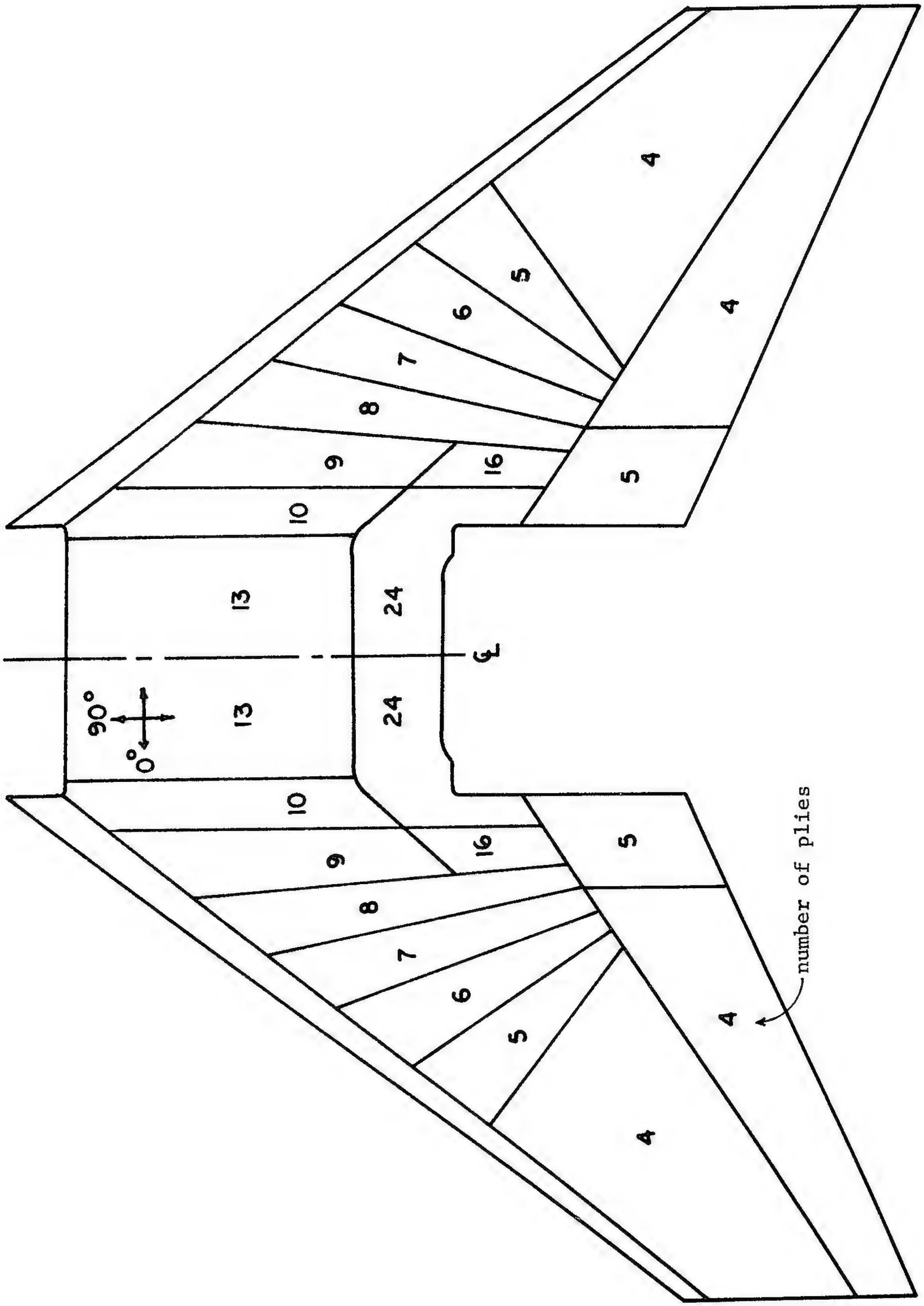


FIGURE 4 - B/Al WING TENSION SKIN LAMINATE DESIGN

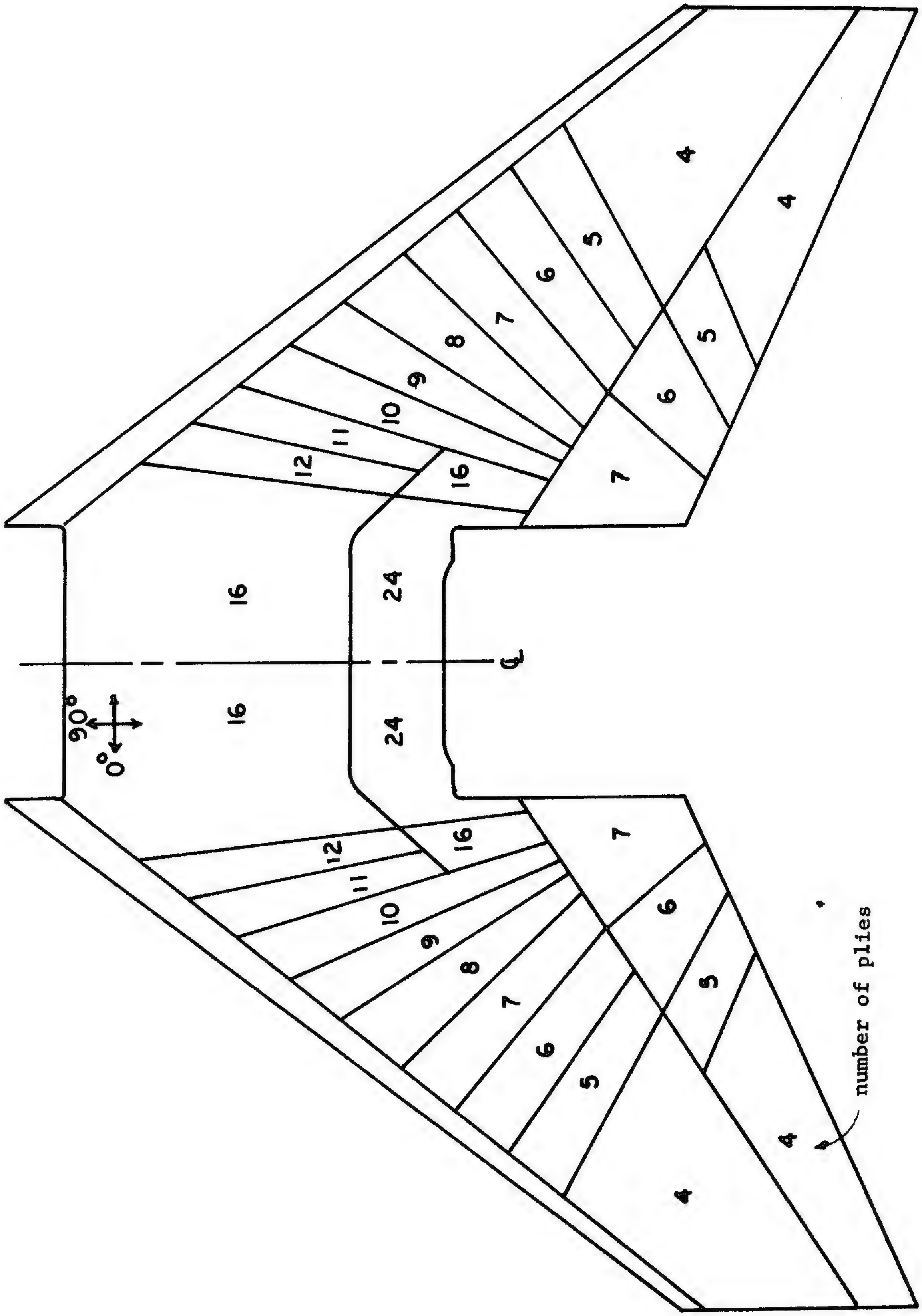


FIGURE 5 - B/Al WING COMPRESSION SKIN LAMINATE DESIGN

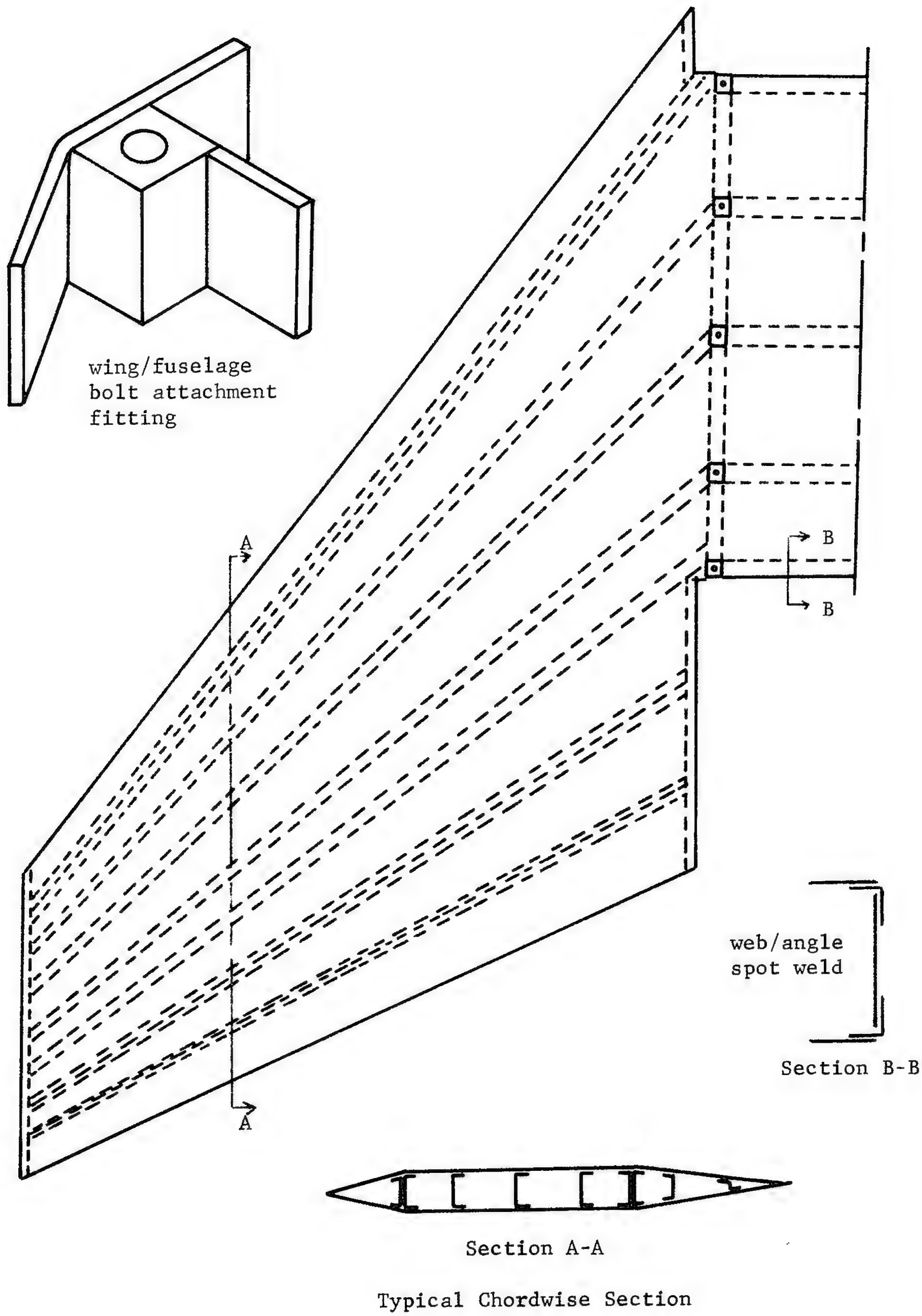


FIGURE 6 - B/Al WING SUBSTRUCTURE

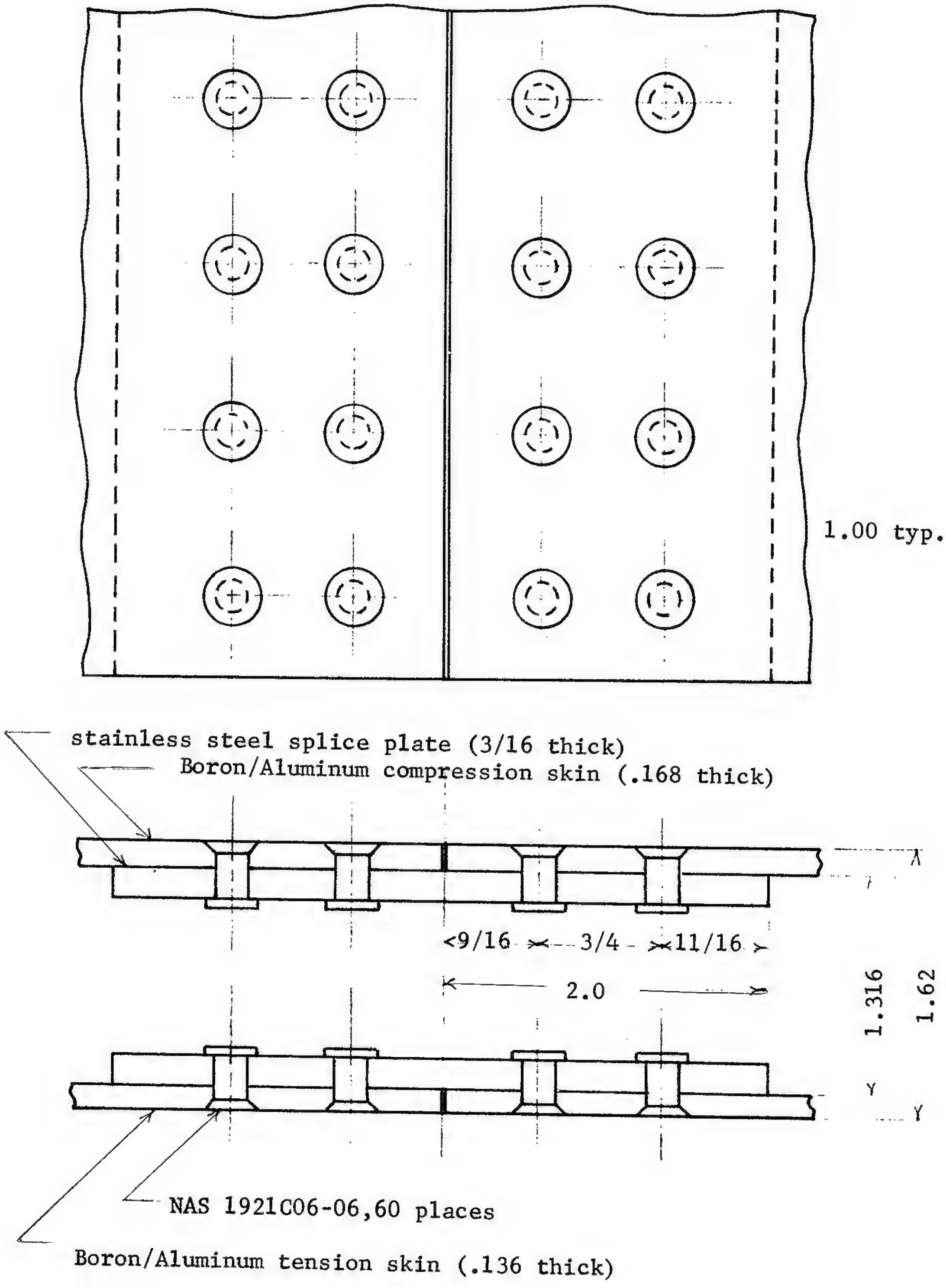


FIGURE 7 - WING SKIN CENTERLINE SPLICE

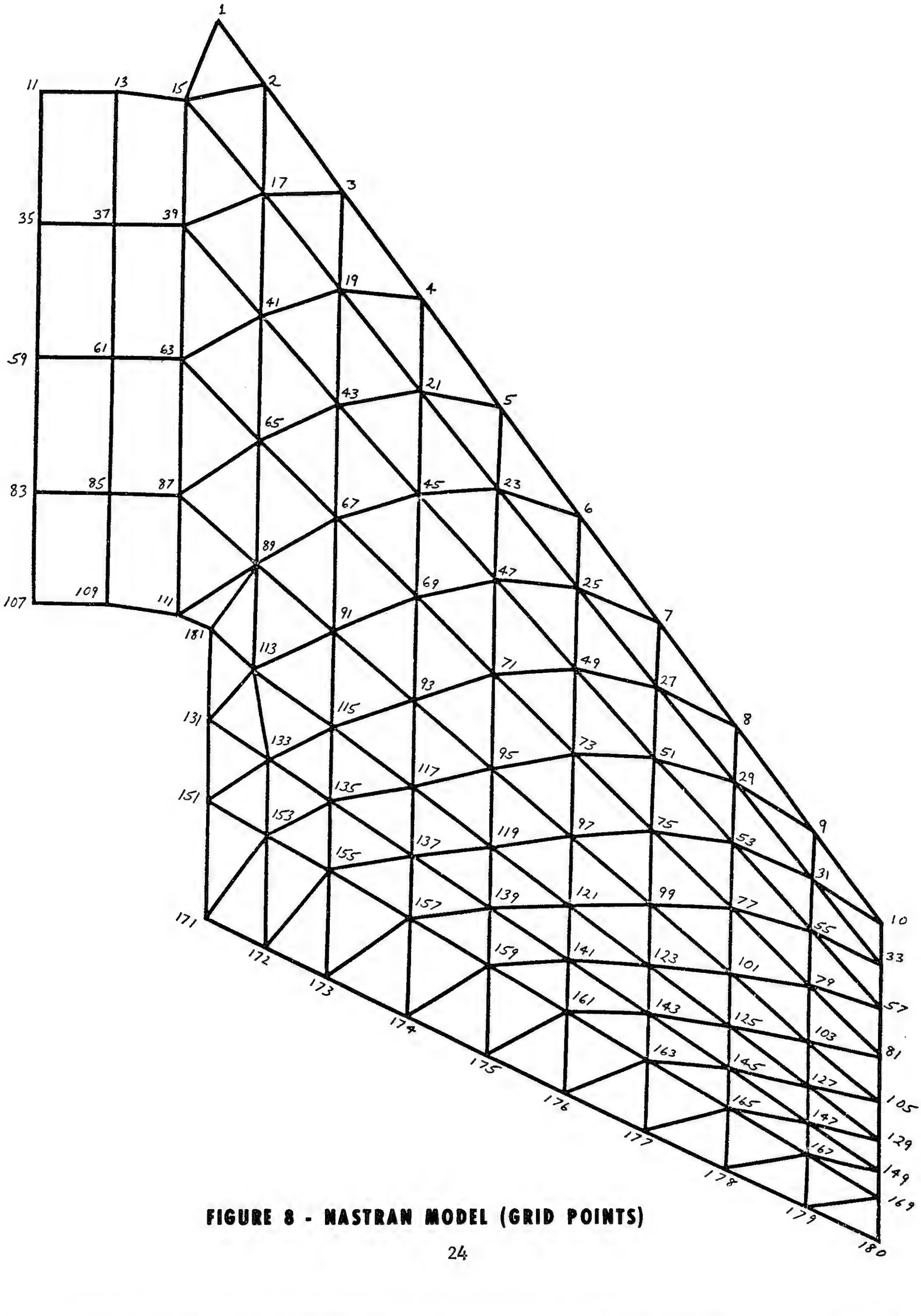


FIGURE 8 - NASTRAN MODEL (GRID POINTS)

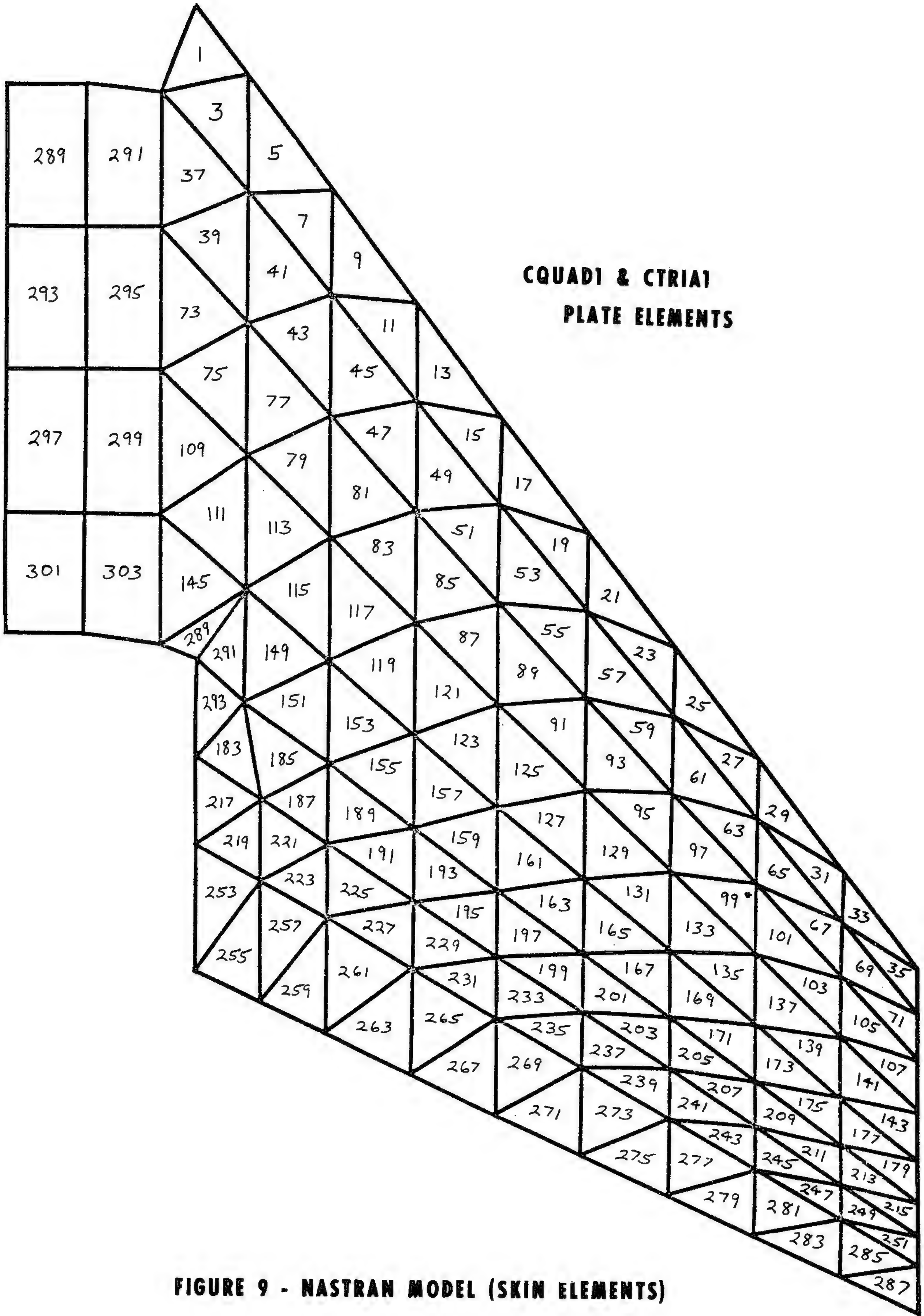
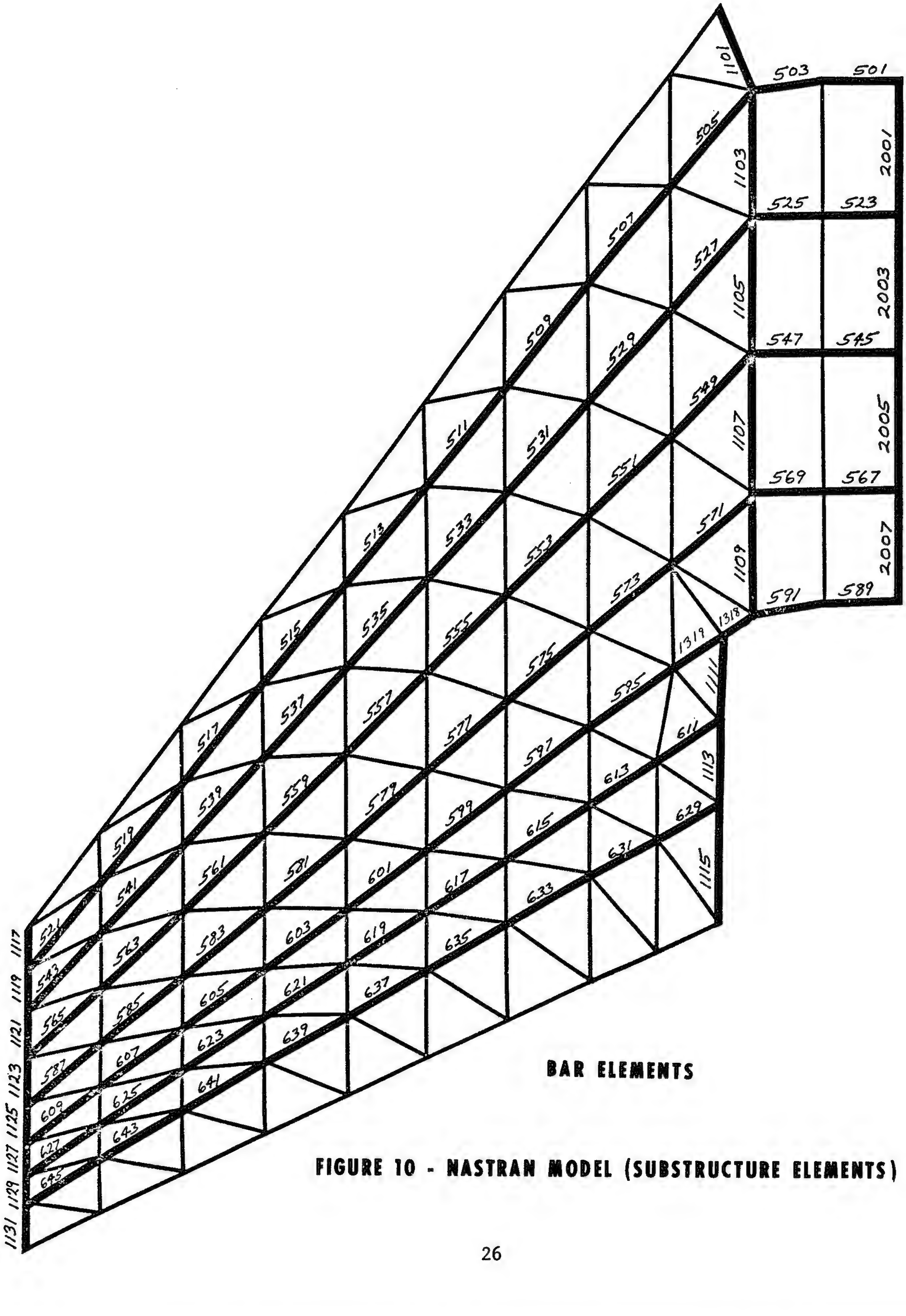


FIGURE 9 - NASTRAN MODEL (SKIN ELEMENTS)



BAR ELEMENTS

FIGURE 10 - NASTRAN MODEL (SUBSTRUCTURE ELEMENTS)

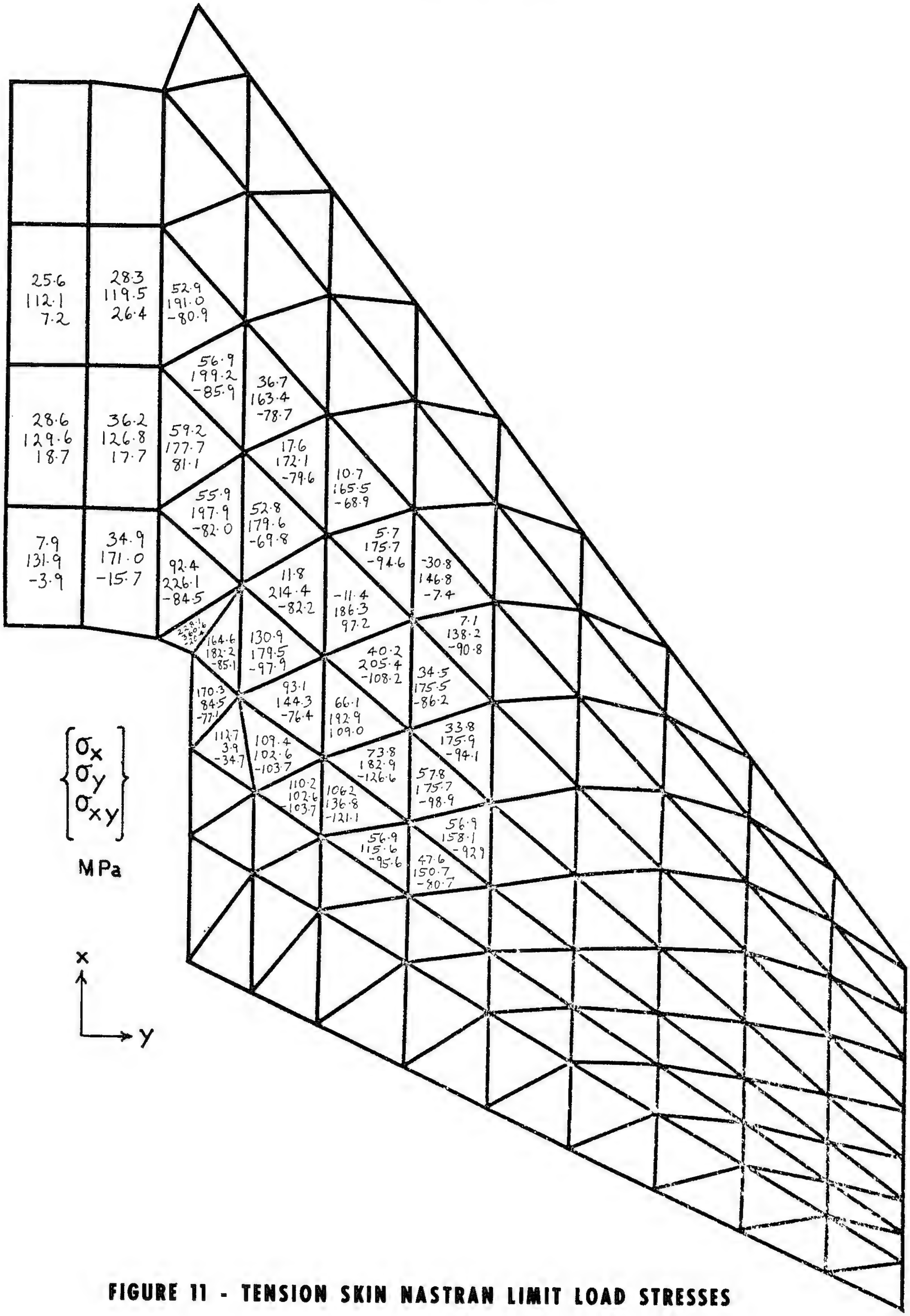


FIGURE 11 - TENSION SKIN NASTRAN LIMIT LOAD STRESSES

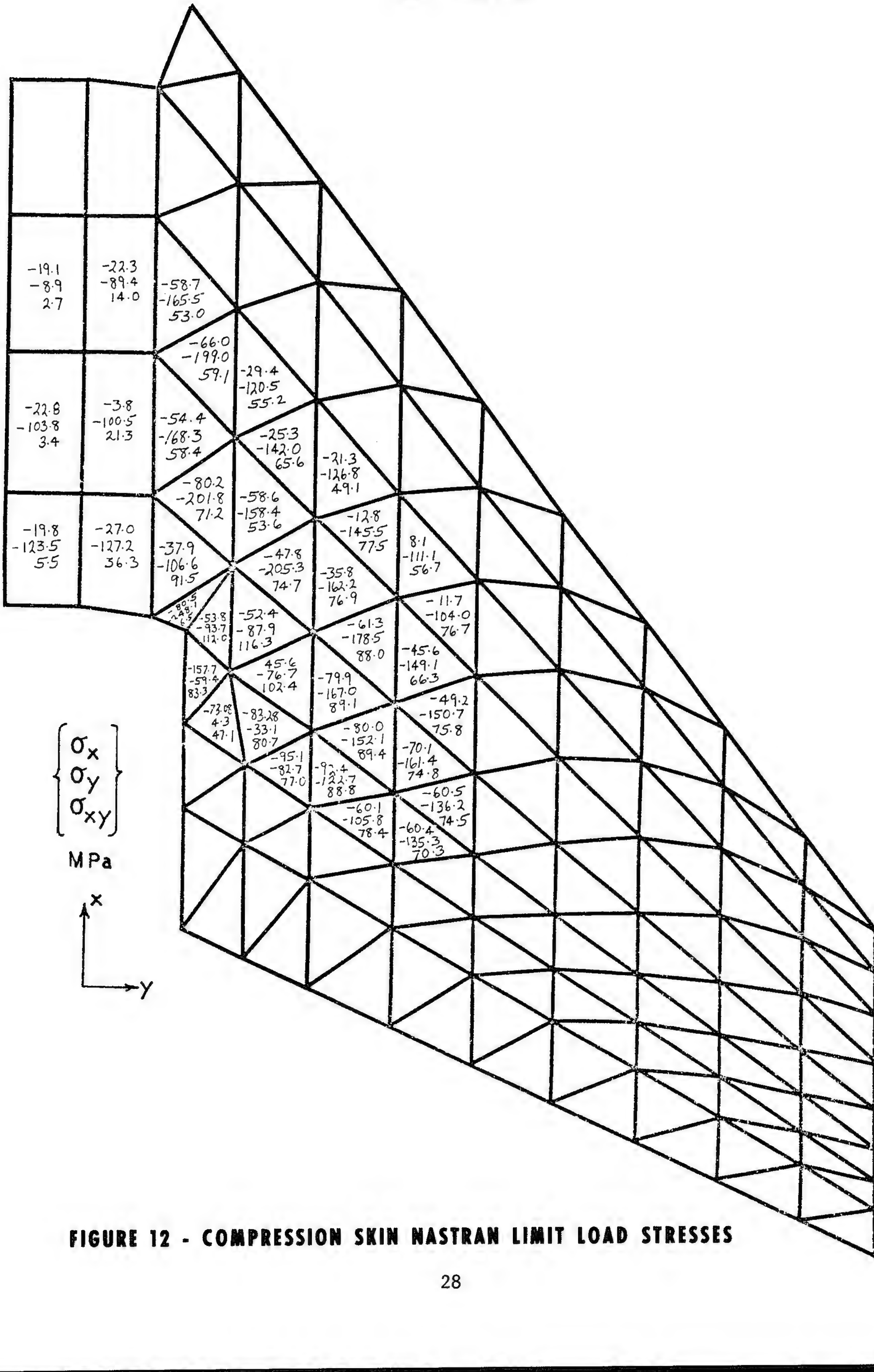
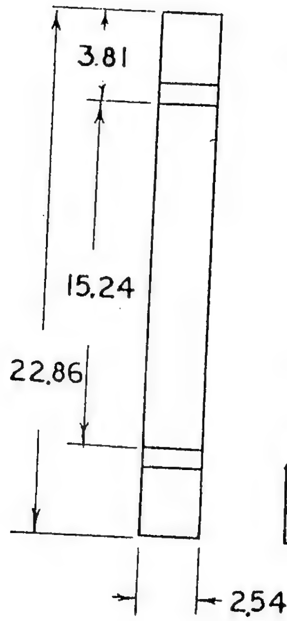
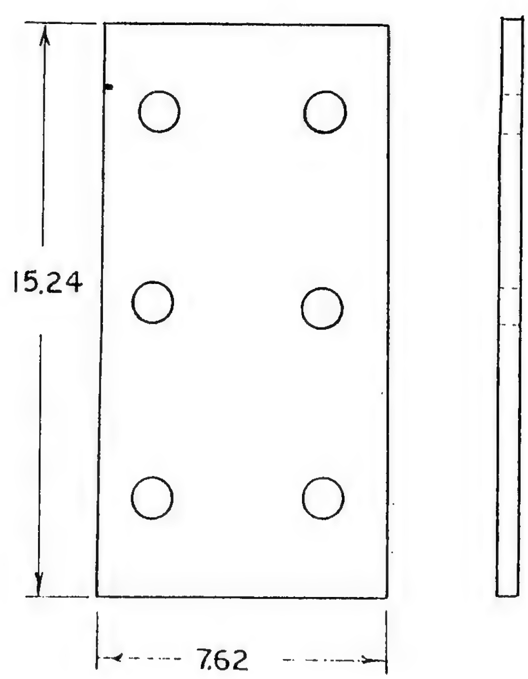


FIGURE 12 - COMPRESSION SKIN NASTRAN LIMIT LOAD STRESSES



Tension



In-Plane Shear

FIGURE 13 - MATERIAL COUPON SPECIMENS

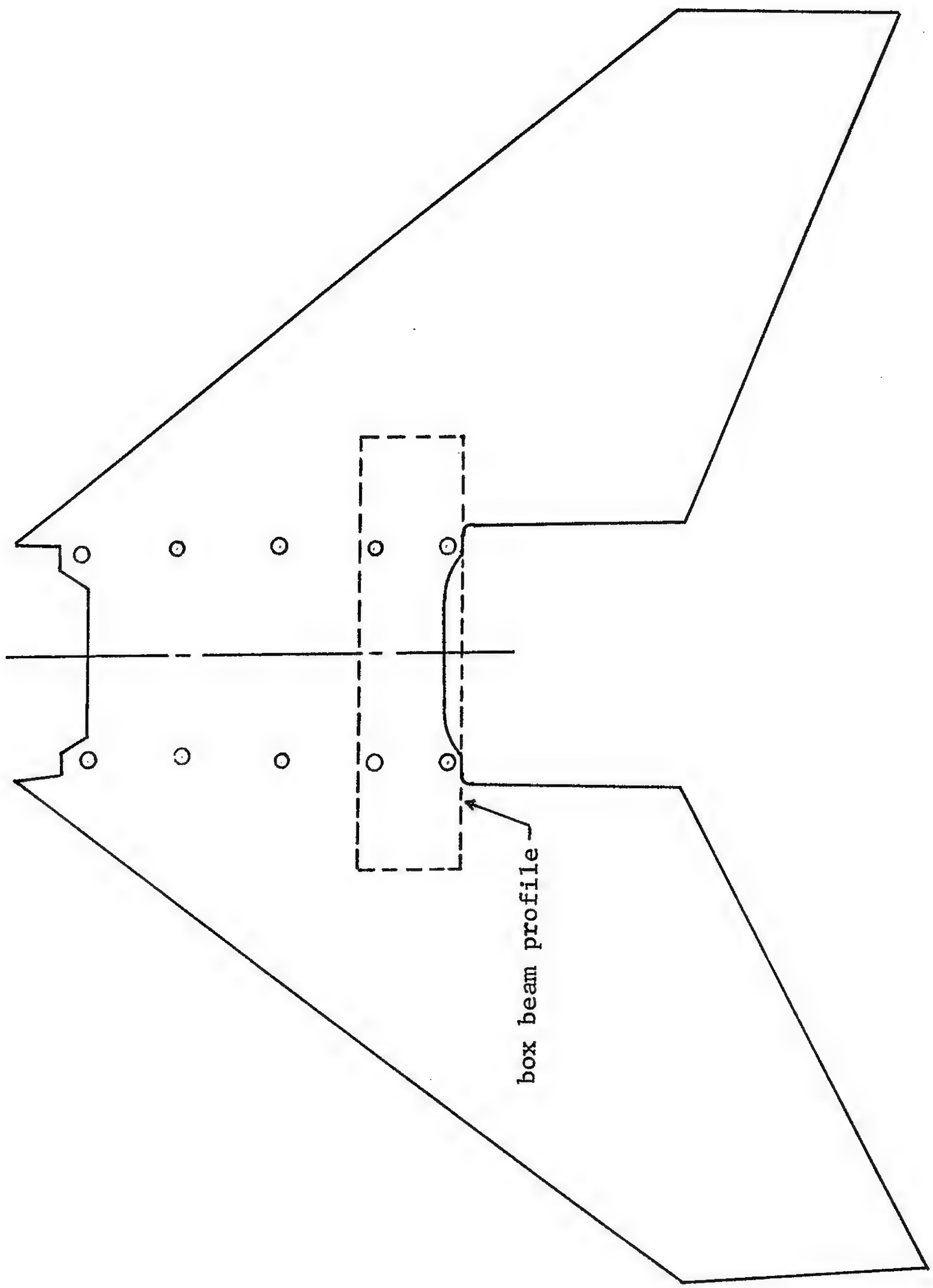


FIGURE 14 - BOX BEAM SUBCOMPONENT PROFILE

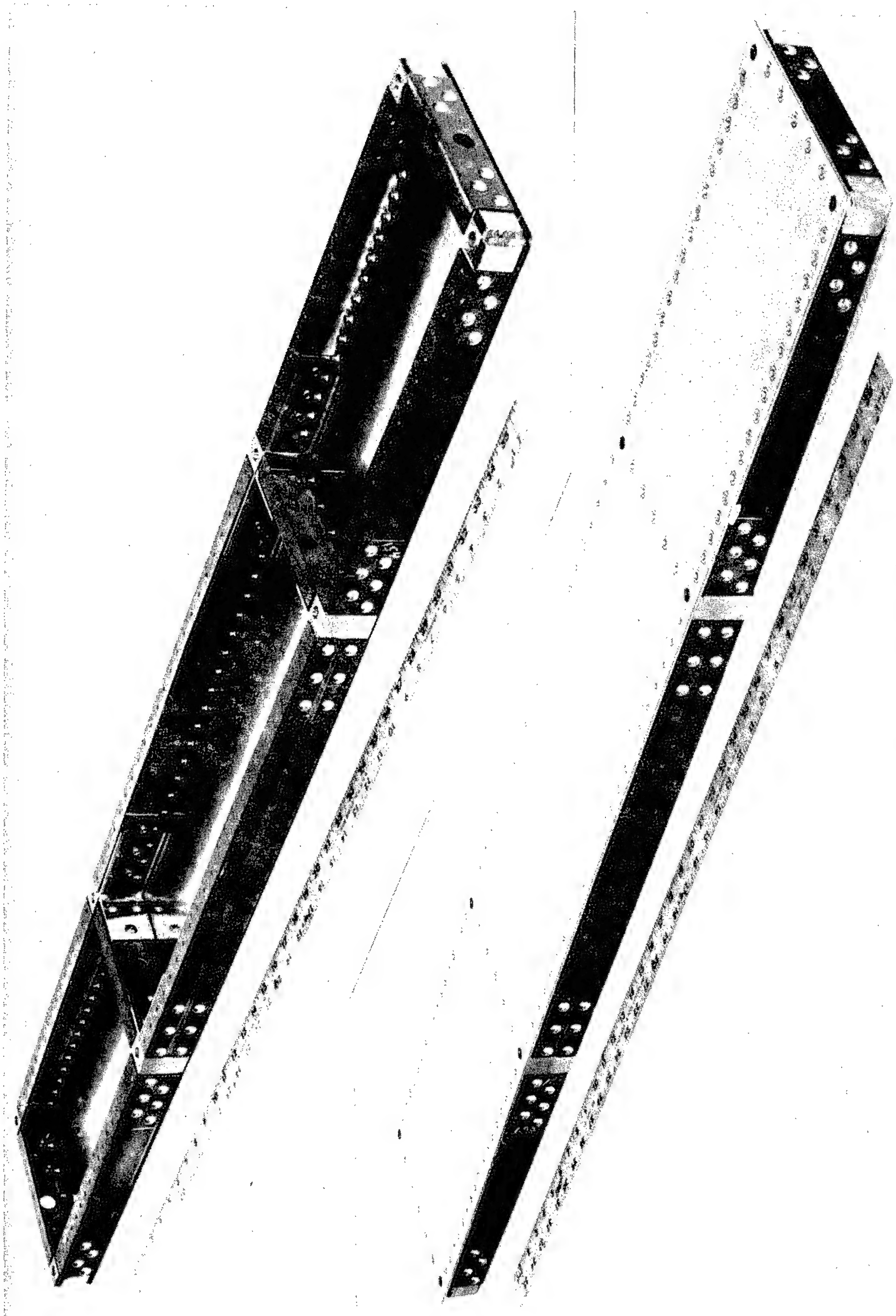


FIGURE 15 - BOX BEAM SUBCOMPONENT ASSEMBLY

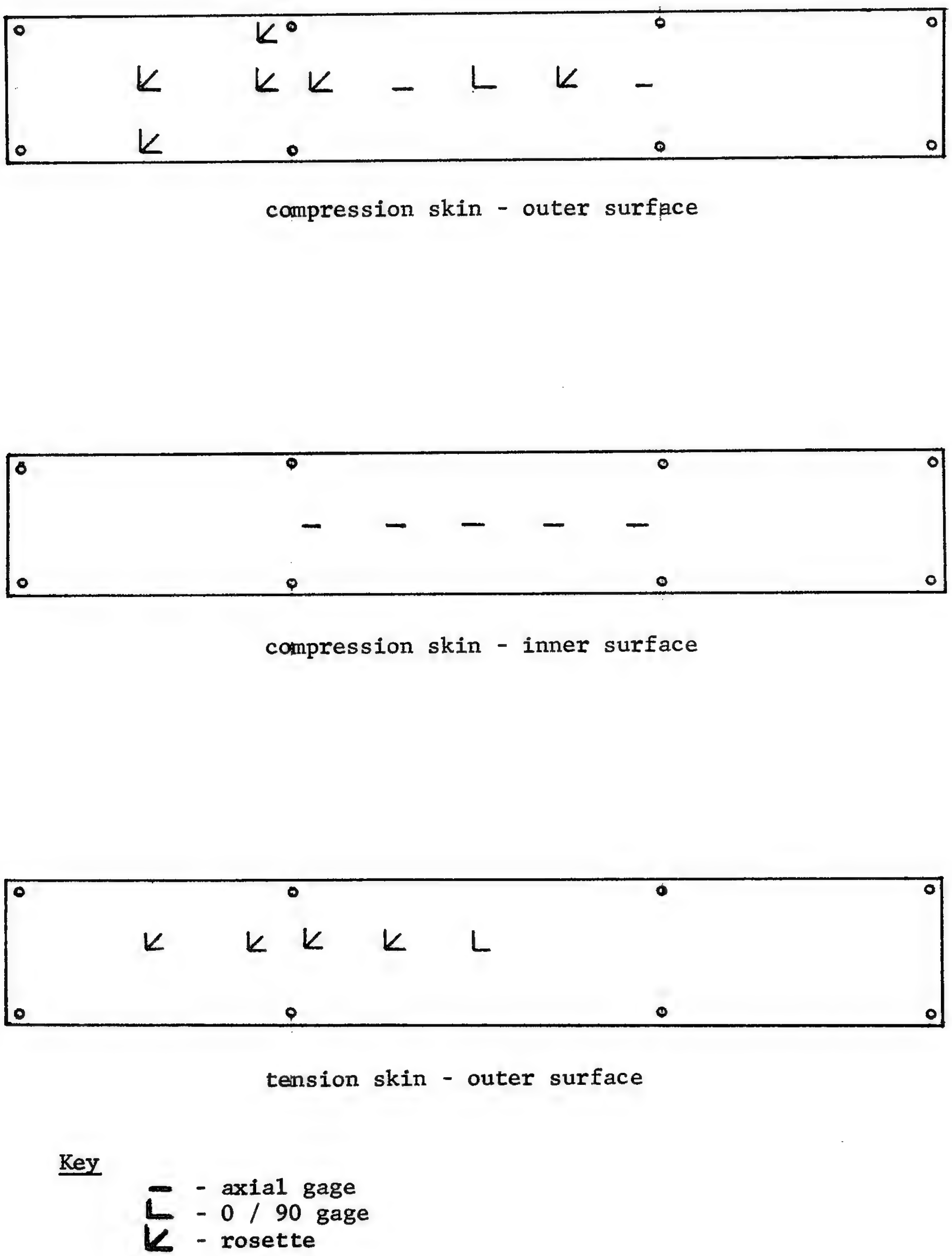


Figure 16 - Box Beam Subcomponent Instrumentation

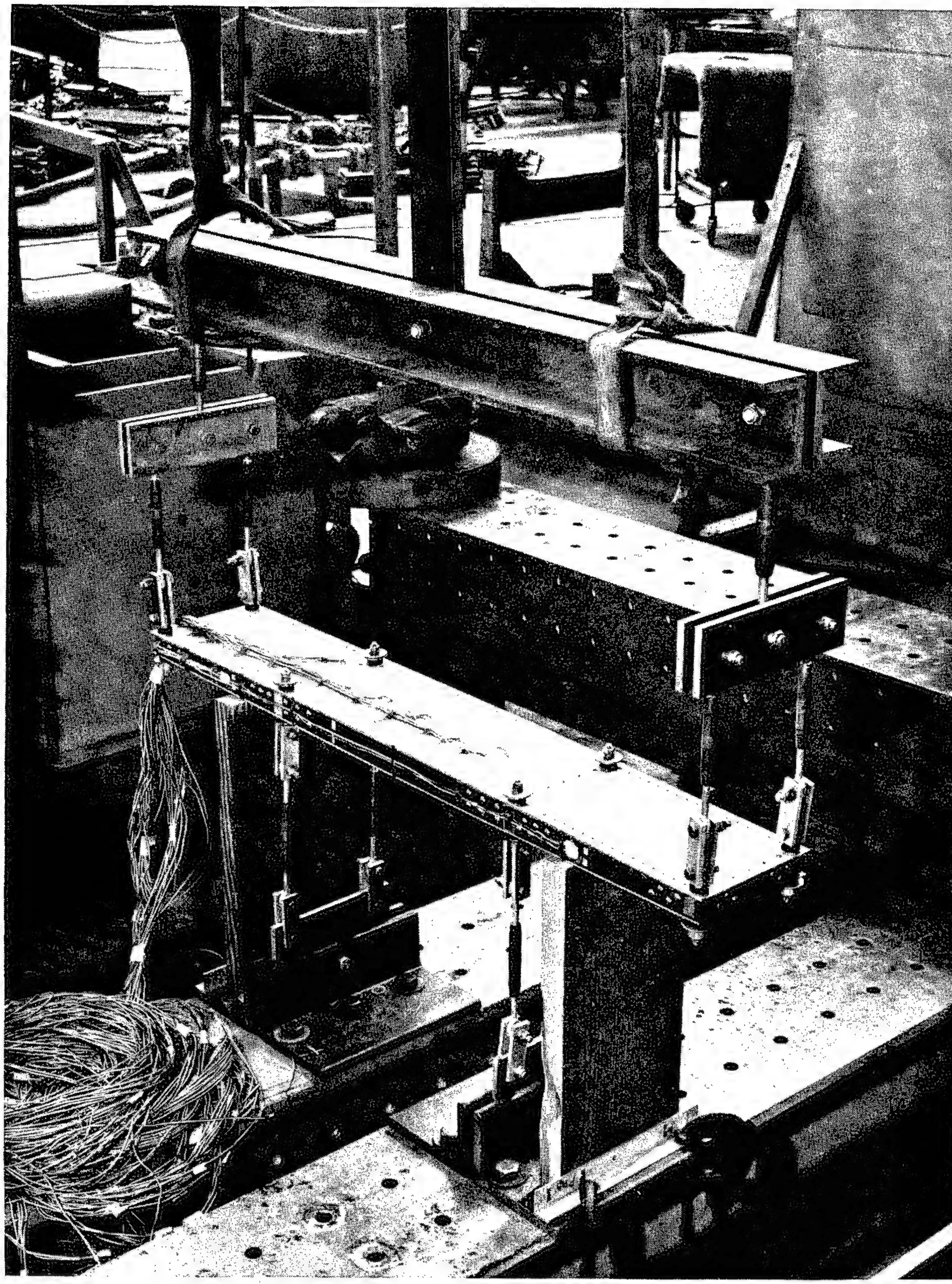


FIGURE 17 - BOX BEAM SUBCOMPONENT TEST SETUP

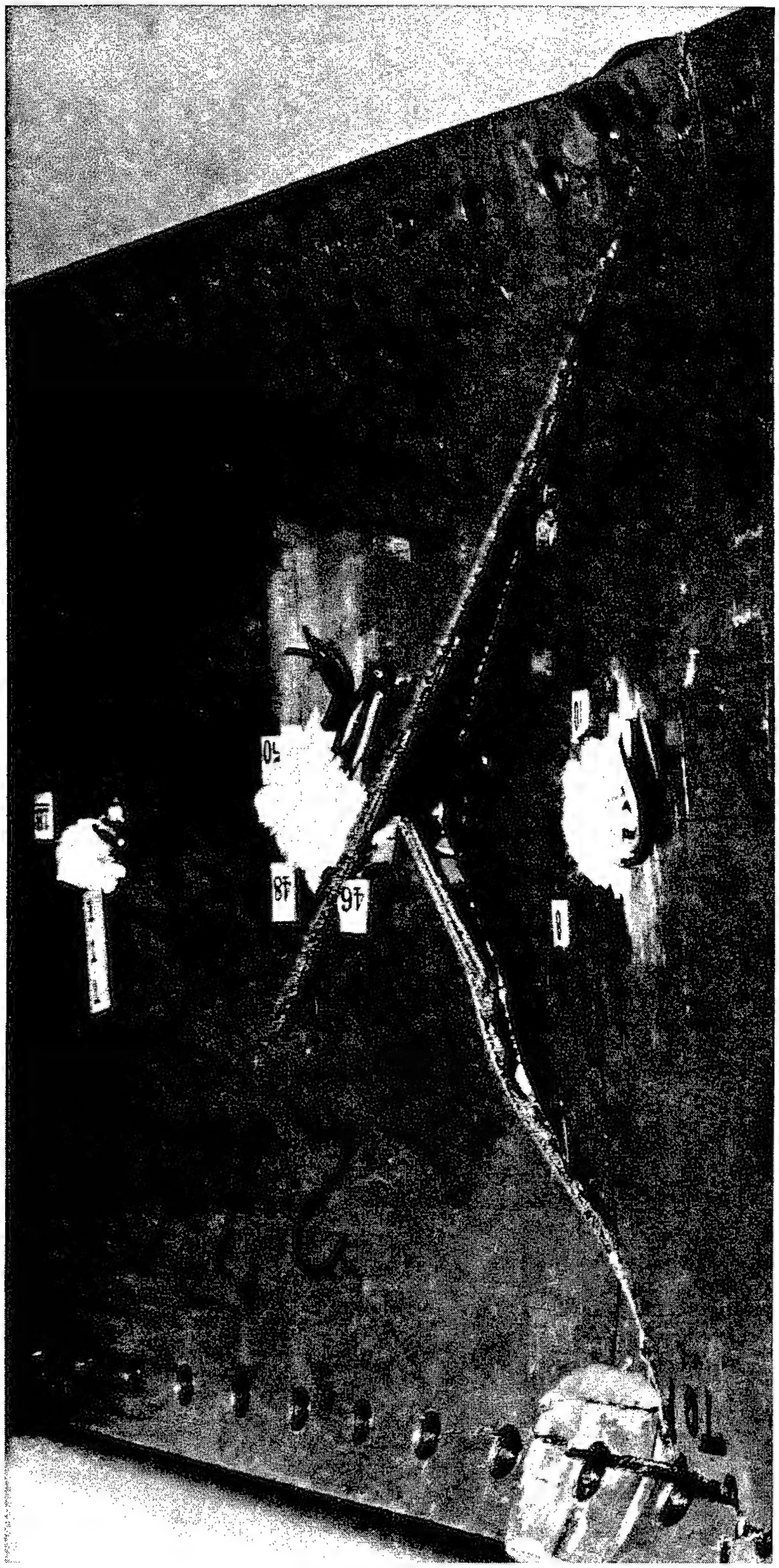


FIGURE 18 - BOX BEAM SUBCOMPONENT FAILURE LOCATION

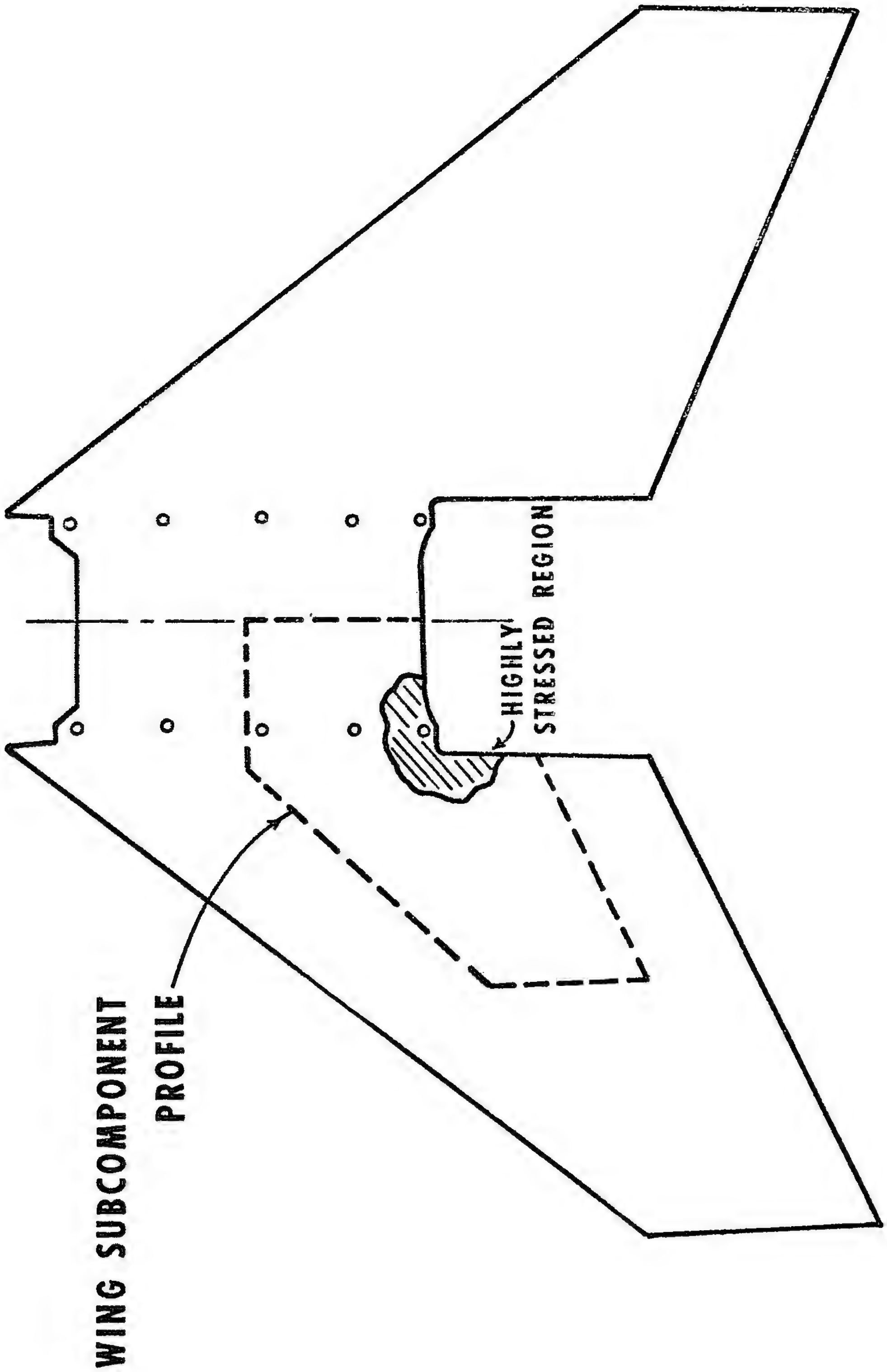
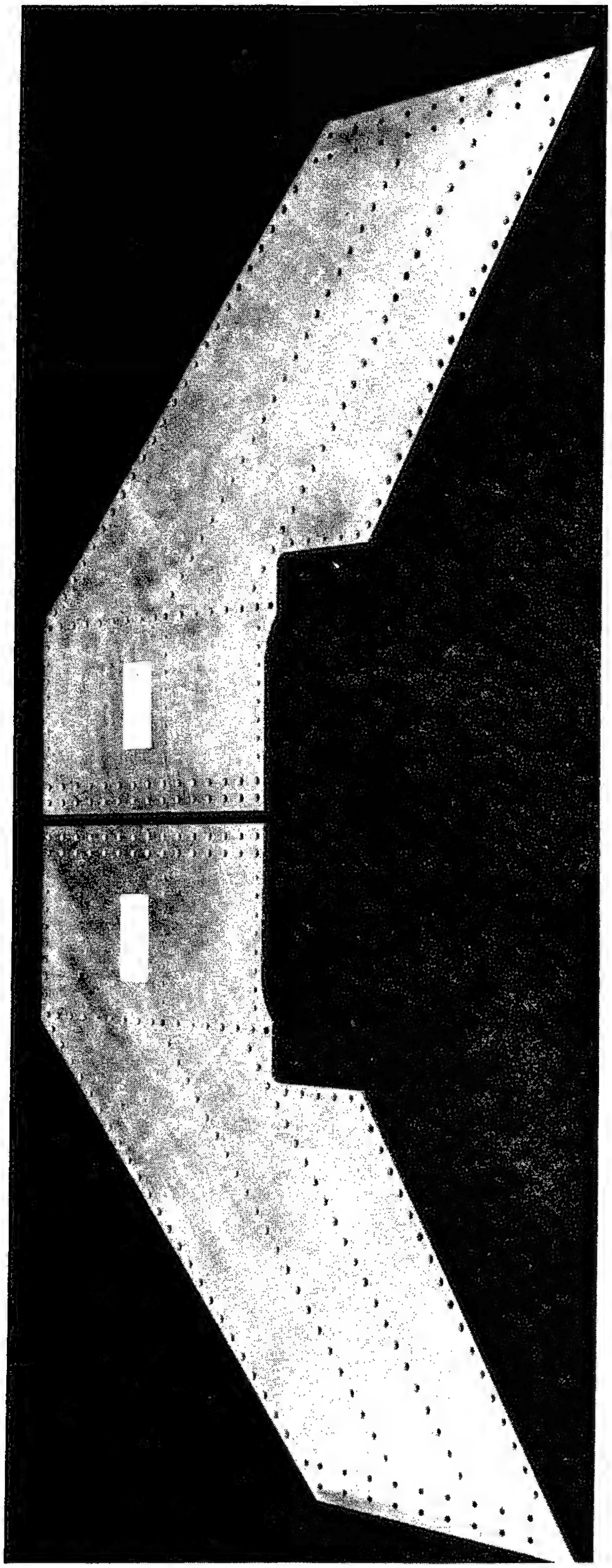


FIGURE 19 - B/Al WING SUBOMPONENT PROFILE



TENSION SKIN - 13 PLIES

COMPRESSION SKIN - 16 PLIES

FIGURE 20 - B/Al WING SUBCOMPONENT SKINS

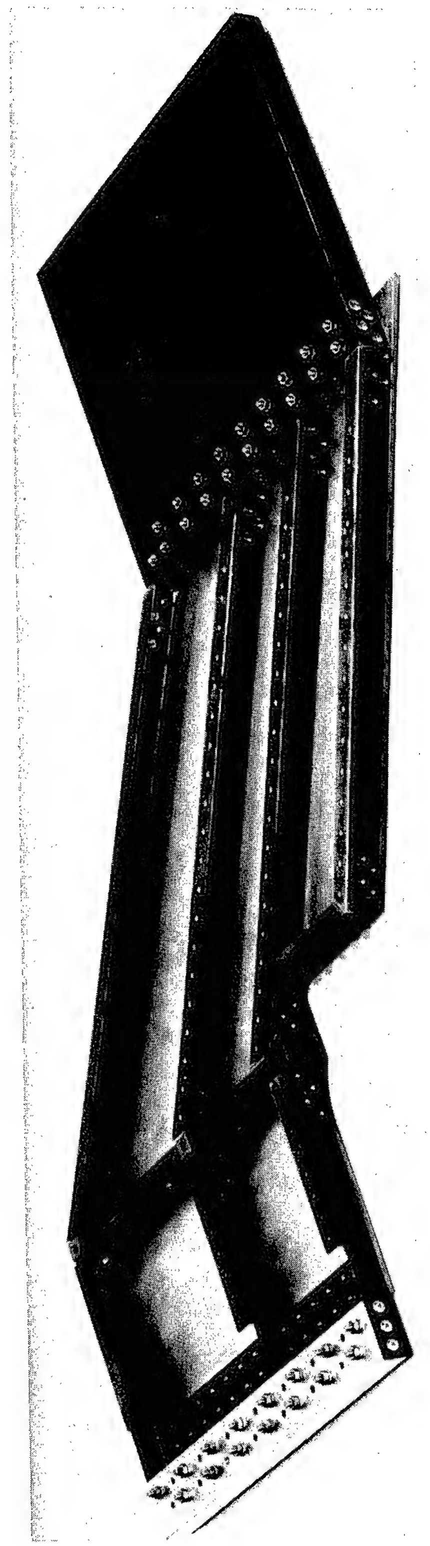


FIGURE 21 - B/Al WING SUBCOMPONENT SUBSTRUCTURE

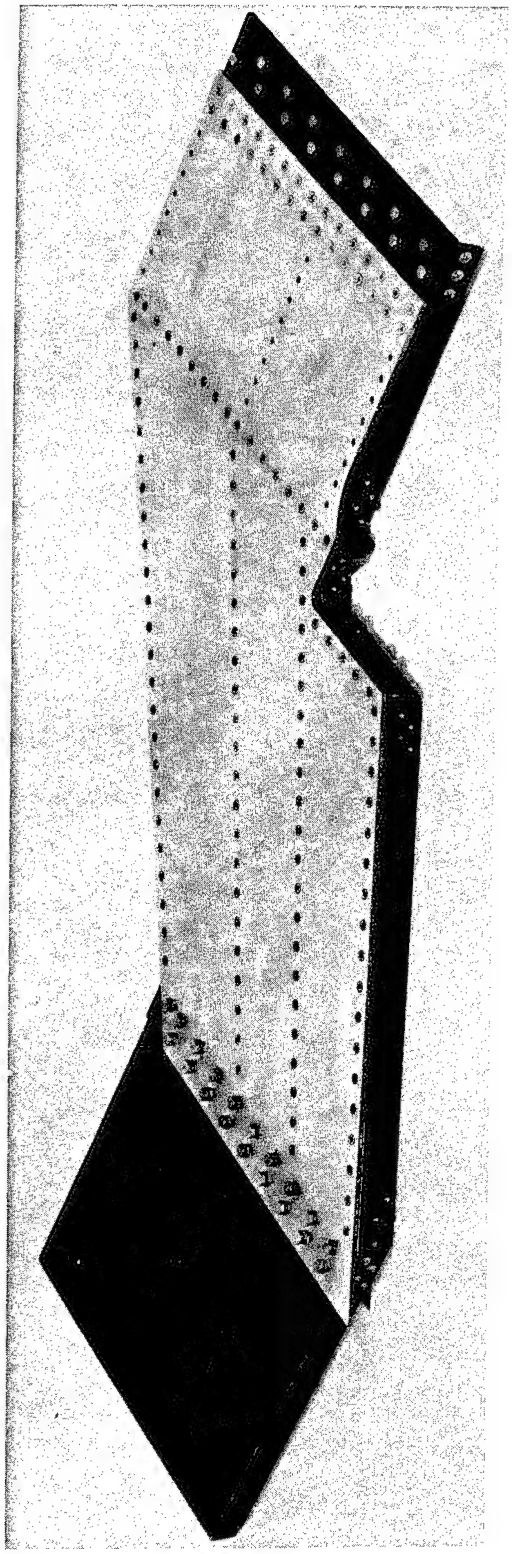


FIGURE 22 - W B/Al WING SUBCOMPONENT FINAL ASSEMBLY

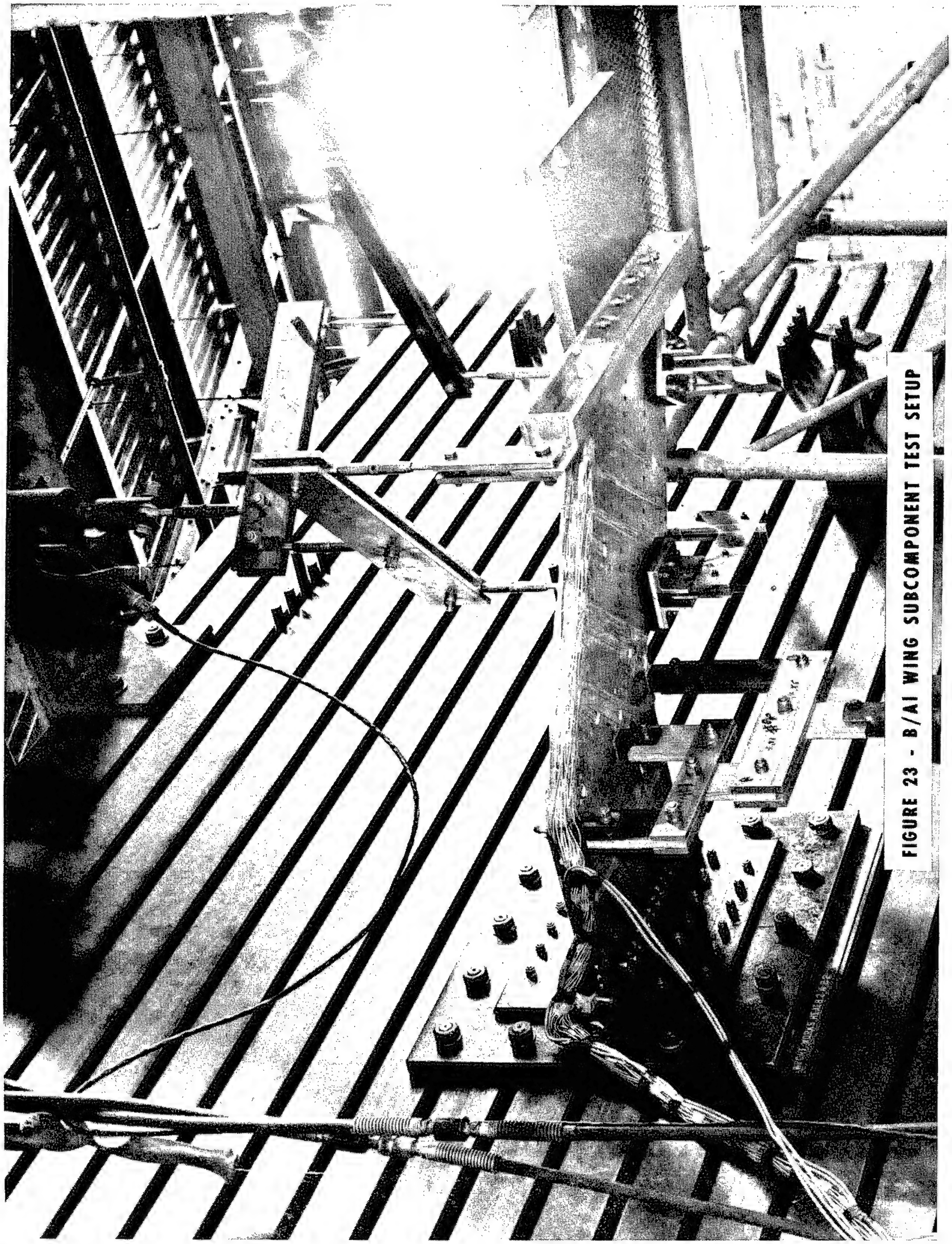
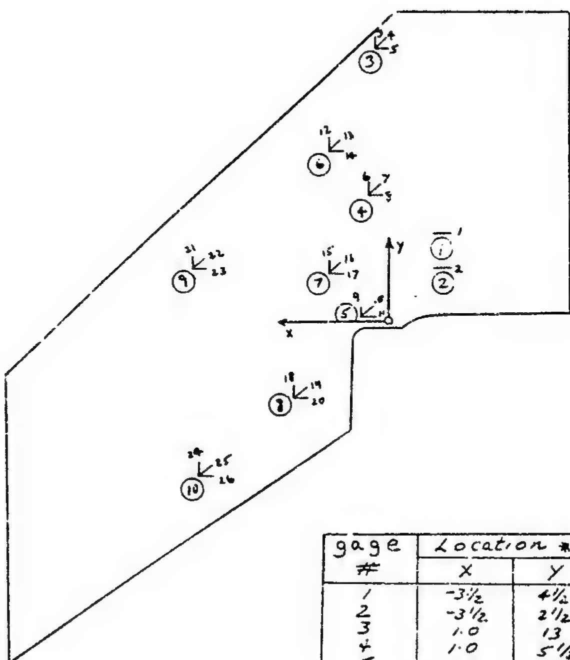


FIGURE 23 - B/Al WING SUBCOMPONENT TEST SETUP

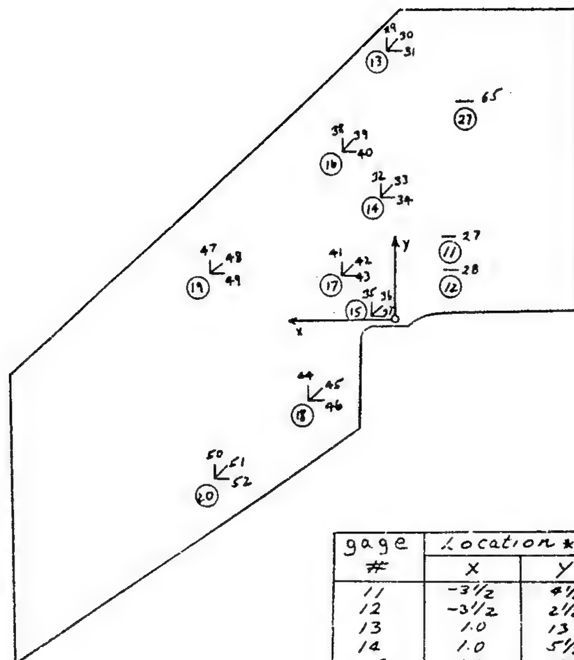
KEY — - axial gage ↙ - rosette



gage #	Location * X	Location * Y
1	-3½	4½
2	-3½	2½
3	1.0	13
4	1.0	5½
5	1.0	1/8
6	3	8¾
7	3	2
8	6	-5½
9	10	2¼
10	10	-8½

* reference - aft bolt hole

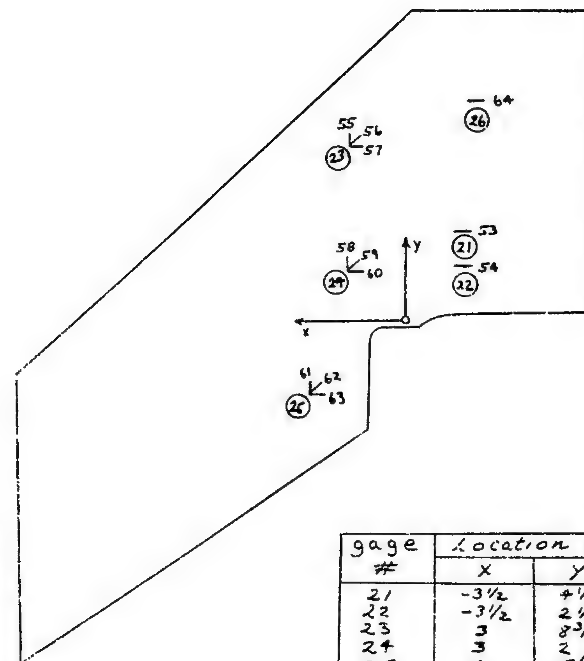
tension skin (external surface)



gage #	Location * X	Location * Y
11	-3½	4½
12	-3½	2½
13	1.0	13
14	1.0	5½
15	1.0	1/8
16	3	8¾
17	3	2
18	6	-5½
19	10	2¼
20	10	-8½
27	11	-3¾

* reference - aft bolt hole

compression skin (external surface)



gage #	Location * X	Location * Y
21	-3½	4½
22	-3½	2½
23	3	8¾
24	3	2
25	6	-5½
26	11	-3¾

* reference - aft bolt hole

compression skin (internal surface)

Figures 24,25 & 26 - B/Al Wing Subcomponent Instrumentation

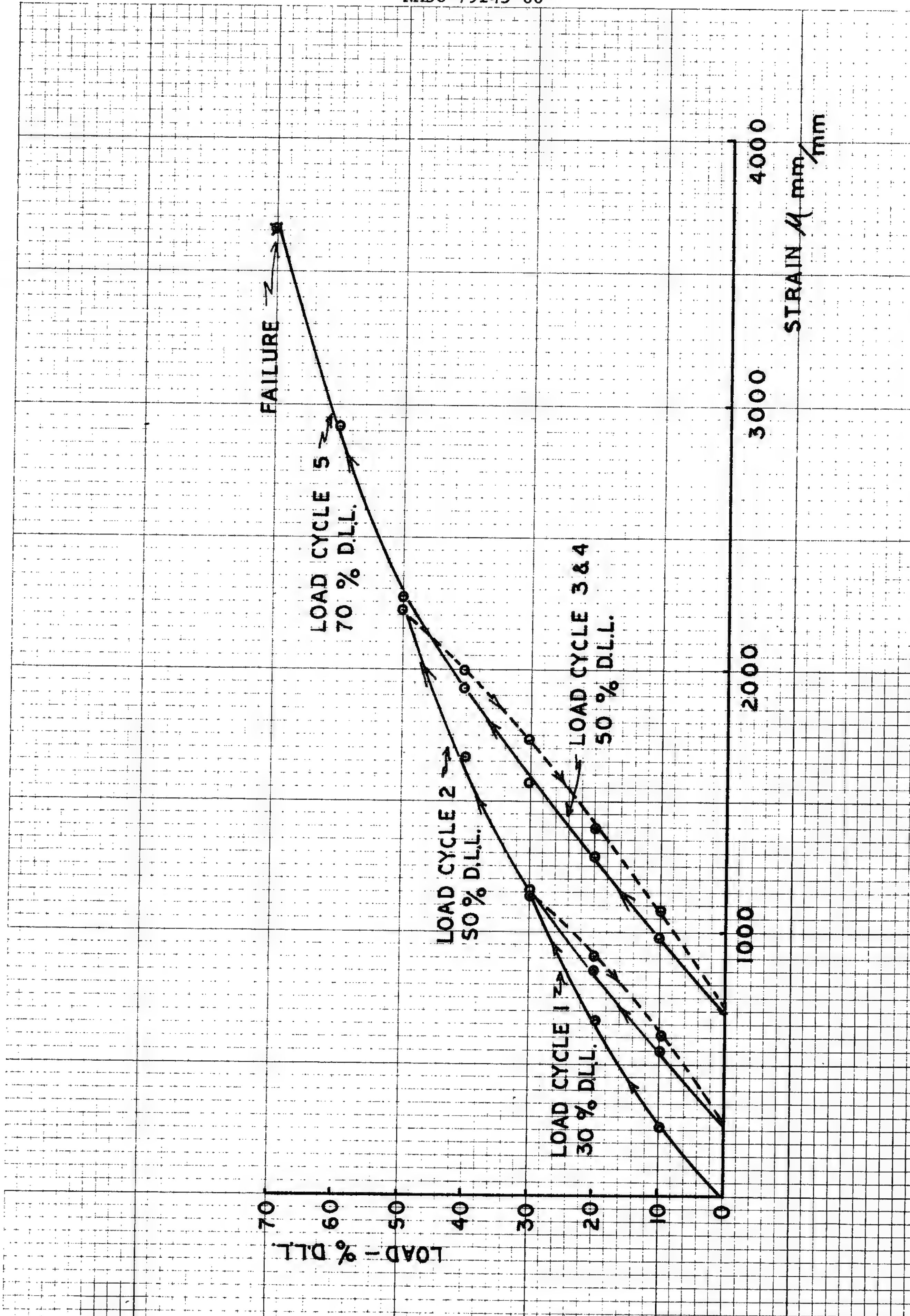


FIGURE 27 - LOAD/STRAIN TEST DATA (B/Al WING SUBCOMPONENT)

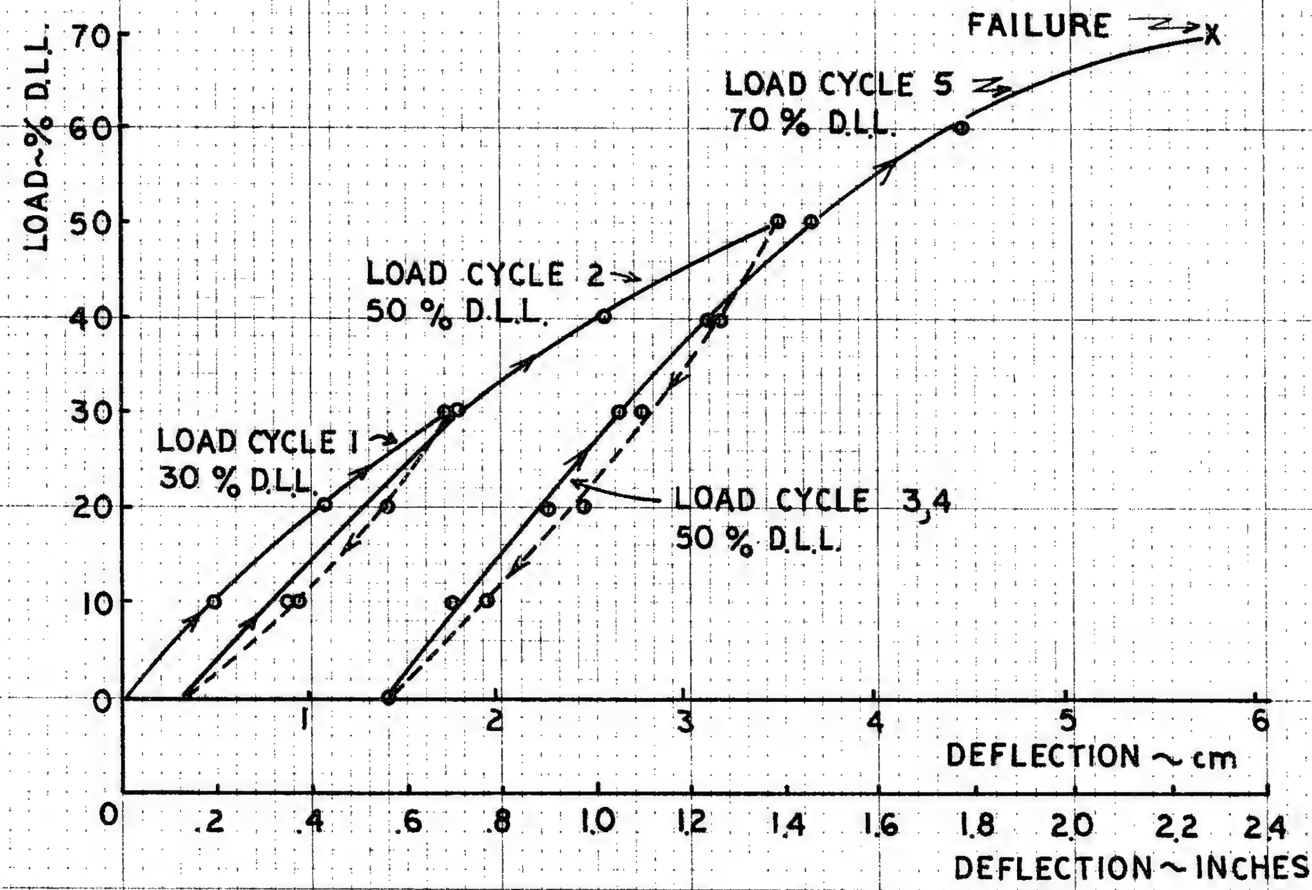


FIGURE 28 - LOAD/DEFLECTION TEST DATA (B/AI WING SUBCOMPONENT)

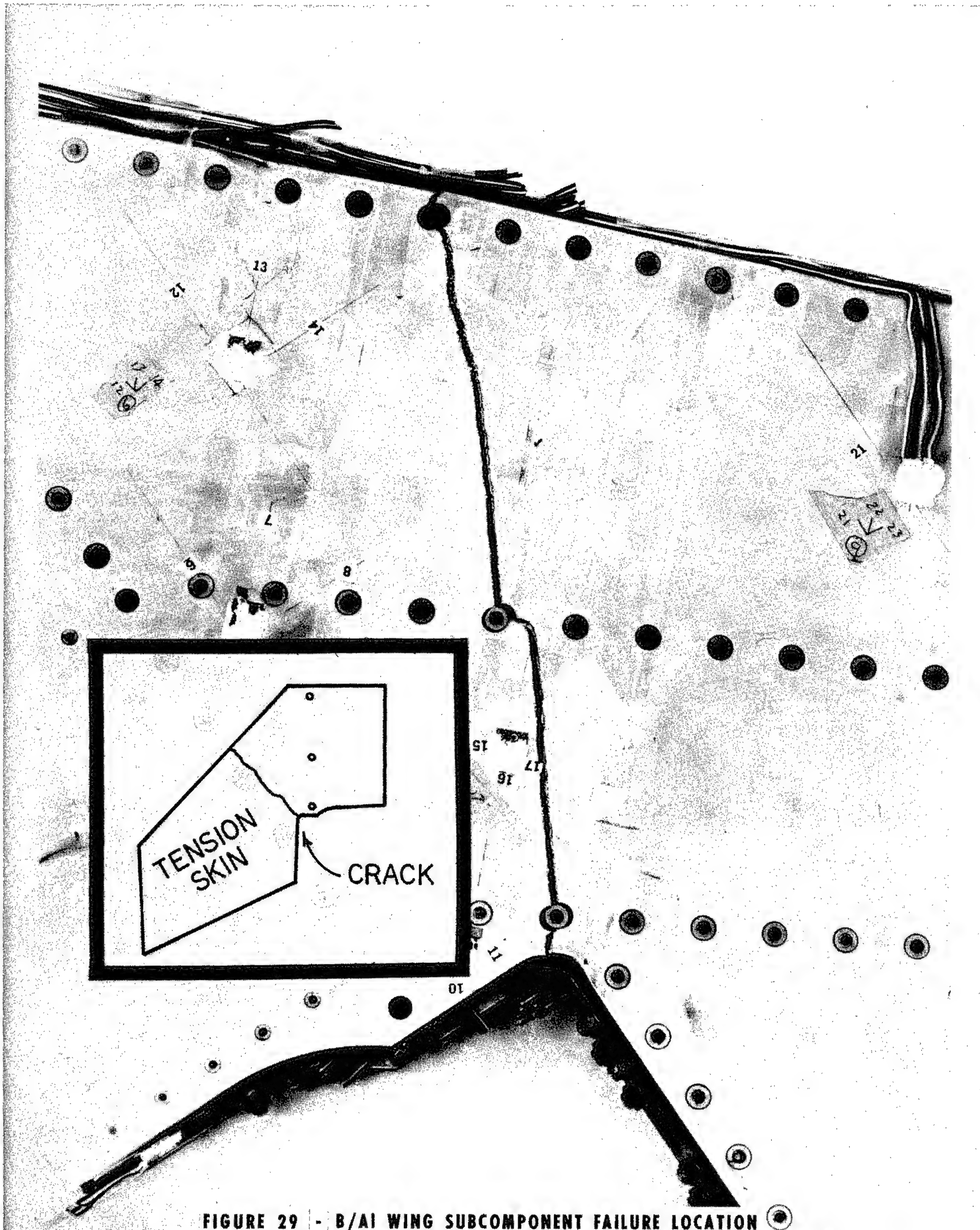


FIGURE 29 - B/Al WING SUBCOMPONENT FAILURE LOCATION

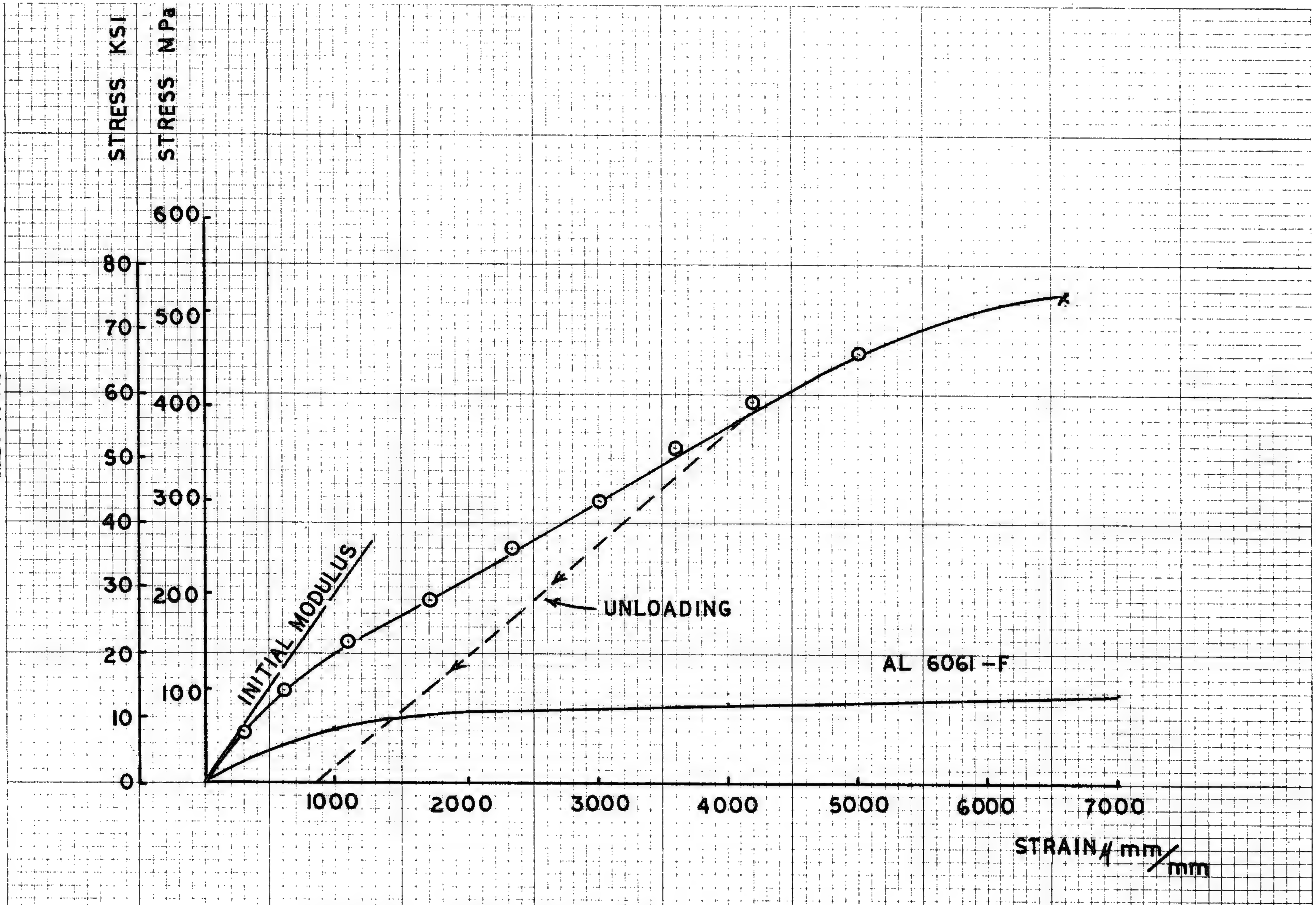


FIGURE 30 - STRESS/STRAIN TEST DATA (B/Al WING SUBCOMPONENT TENSILE SKIN)

NASTRAN Element Number	Nxult KN/m	Nxyult KN/m	Nxcr KN/m	Nxycr KN/m	Nxult / Nxcr	Nxyult / Nxycr	Margin of Safety
290	-1985	15.6	-9619	13518	.205	.001	3.84
292	-750	896	-7996	13518	.094	.066	6.81
294	-1261	666	-1737	17764	.746	.037	.37
150	-469	620	-3055	5263	.154	.118	3.60
116	-822	299	-800	1072	1.028	.279	-.09
154	-501	267	-698	1091	.718	.245	.26
156	-409	547	-4619	6827	.089	.080	6.36
158	-377	175	-425	641	.887	.273	.04
190	-327	237	-406	808	.805	.293	.11
194	-271	140	-265	403	1.023	.347	-.11
162	-284	110	-294	428	.966	.257	-.03
198	-223	88	-251	344	.888	.256	.05
304	-1020	291	-4588	6094	.223	.048	3.31
166	-216	66	-211	289	1.024	.228	-.07

Table 1 - B/Al Wing Compression Skin Critical Buckling Loads

Laminate Type	# Specimens	Ult. Tensile Stress (MPa)
0/±45	5	492.7
90/±45	5	189.3
±45	6	327.3

Table 2 - Results Tensile Coupon Tests

Laminate Type	# Specimens	Ult. Shear Stress (MPa)
0/±45	5	257.4
0	5	131.4
±45	5	309.6

Table 3 - Results Rail Shear Coupon Tests

Laminate Type	E_1 (GPa)	E_2 (GPa)	G (GPa)	12	21
0/±45	158.2	131.3	50.5	.331	.307
±45	137.2	137.2	54.9	.364	.364

Table 4 - Experimental Material Property Constants

Wing Skin	Test Dir.	Specimen Number	X-Sect Area (cm^2)	E_1 GPa	Prop. Limit MPa	Ult. Load KN	Ult. Stress MPa	Failure Strain m/m	Fibers in Test Direction (%)
-1	90	6240P-A1	.445	175.8	88.3	23.8	541.9	.0080	23.1
-1	90	6240P-A2	.448	173.1	86.2	23.5	530.9	.0075	23.1
-1	0	6240P-A3	.447	120.0	97.9	23.9	532.3	.0066	30.1
-1	0	6240P-A4	.462	157.2	95.2	27.9	612.3	.0066	30.1
-2	90	6241P-A1	.554	151.0	53.8	26.5	484.7	.0088	18.8
-2	90	6241P-A2	.551	134.5	51.0	24.5	450.2	.0077	18.8
-2	0	6241P-A3	.557	163.4	75.8	29.0	528.8	.0065	31.3
-2	0	6241P-A4	.548	102.7	93.1	27.2	504.0	.0064	31.3

Wing Skin -1 (Tension)-----(0,90,+45,-45,0,-45,90,+45,0,+45,-45,90,0) 13 ply

Wing Skin -2 (Compression)-----(0,90,+45,-45,0,-45,+45,0,0,+45,-45,90,-45,+45,90,0) 16 ply

Table 5 - Wing Subcomponent Skin Tensile Test Results

APPENDIX A

NASTRAN BULK DATA

N A S T R A N E X E C U T I V E C O N T R O L D E C K E C H O

```
ID HI-TEMP WING, T NEU,R RICHEY,H RUBIN
APP DISPLACEMENT
SOL 1,0
TIME 15
CEND
```

C A S E   C O N T R O L   D E C K   E C H O

```
  CARD
  COUNT
    1      SET 5= 11,12,15,16,35,36,39,40,59,60,63,64,83,84,87,88,107,108,111,112
    2      SPCFORCES= 5
    3      ELFORCE= ALL
    4      ELSTRESS= ALL
    5      DISPLACEMENT= ALL
    6      TITLE= B/AL WING STATIC ANALYSIS, EXP. PROP.
    7      SUBTITLE=SKIN CHANGES OF 10-31-78 + NEW G11 OF ELEM 289+290(11-2-78)
    8      SUBCASE 1
    9      LOAD = 10
   10      SPC= 10
   11      BEGIN BULK
```

*** USER INFORMATION MESSAGE 207, BULK DATA NOT SORTED,XSORT WILL RE-ORDER DECK.

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
1-	CBAR	501	501	11	13	0.0	0.0	1.	1	+CAR 501
2-	+CAR 501			0.	0.	.7642	0.	0.	.7507	
3-	CBAR	502	502	12	14	0.0	0.0	1.	1	+CAR 502
4-	+CAR 502			0.	0.	-.7799	0.	0.	-.7665	
5-	CBAR	503	503	13	15	0.0	0.0	1.	1	+CAR 503
6-	+CAR 503			0.	0.	.7507	0.	0.375	.7103	
7-	CBAR	504	504	14	16	0.0	0.0	1.	1	+CAR 504
8-	+CAR 504			0.	0.	-.7665	0.	0.375	-.7260	
9-	CBAR	505	505	15	17	0.0	0.0	1.	1	+CAR 505
10-	+CAR 505			0.	0.	.7103	0.	0.	.6713	
11-	CBAR	506	506	16	18	0.0	0.0	1.	1	+CAR 506
12-	+CAR 506			0.	0.	-.7260	0.	0.	-.6871	
13-	CBAR	507	507	17	19	0.0	0.0	1.	1	+CAR 507
14-	+CAR 507			0.	0.	.6713	0.	0.	.6114	
15-	CBAR	508	508	18	20	0.0	0.0	1.	1	+CAR 508
16-	+CAR 508			0.	0.	-.6871	0.	0.	-.6324	
17-	CBAR	509	509	19	21	0.0	0.0	1.	1	+CAR 509
18-	+CAR 509			0.	0.	.6114	0.	0.	.5672	
19-	CBAR	510	510	20	22	0.0	0.0	1.	1	+CAR 510
20-	+CAR 510			0.	0.	-.6324	0.	0.	-.5829	
21-	CBAR	511	511	21	23	0.0	0.0	1.	1	+CAR 511
22-	+CAR 511			0.	0.	.5672	0.	0.	.5230	
23-	CBAR	512	512	22	24	0.0	0.0	1.	1	+CAR 512
24-	+CAR 512			0.	0.	-.5829	0.	0.	-.5335	
25-	CBAR	513	513	23	25	0.0	0.0	1.	1	+CAR 513
26-	+CAR 513			0.	0.	.5230	0.	0.	.4683	
27-	CBAR	514	514	24	26	0.0	0.0	1.	1	+CAR 514
28-	+CAR 514			0.	0.	-.5335	0.	0.	-.4783	
29-	CBAR	515	515	25	27	0.0	0.0	1.	1	+CAR 515
30-	+CAR 515			0.	0.	.4683	0.	0.	.4189	
31-	CBAR	516	516	26	28	0.0	0.0	1.	1	+CAR 516
32-	+CAR 516			0.	0.	-.4783	0.	0.	-.4241	
33-	CBAR	517	517	27	29	0.0	0.0	1.	1	+CAR 517
34-	+CAR 517			0.	0.	.4189	0.	0.	.3694	
35-	CBAR	518	518	28	30	0.0	0.0	1.	1	+CAR 518
36-	+CAR 518			0.	0.	-.4241	0.	0.	-.3694	
37-	CBAR	519	519	29	31	0.0	0.0	1.	1	+CAR 519
38-	+CAR 519			0.	0.	.3694	0.	0.	.3095	
39-	CBAR	520	520	30	32	0.0	0.0	1.	1	+CAR 520
40-	+CAR 520			0.	0.	-.3694	0.	0.	-.3095	
41-	CBAR	521	521	31	33	0.0	0.0	1.	1	+CAR 521
42-	+CAR 521			0.	0.	.3095	0.	0.	.2544	
43-	CBAR	522	522	32	34	0.0	0.0	1.	1	+CAR 522
44-	+CAR 522			0.	0.	-.3095	0.	0.	-.2544	
45-	CBAR	523	523	35	37	0.0	0.0	1.	1	+CAR 523
46-	+CAR 523			0.	0.	.7642	0.	0.	.7507	
47-	CBAR	524	524	36	38	0.0	0.0	1.	1	+CAR 524
48-	+CAR 524			0.	0.	-.7799	0.	0.	-.7665	
49-	CBAR	525	525	37	39	0.0	0.0	1.	1	+CAR 525
50-	+CAR 525			0.	0.	.7507	0.	0.	.7103	

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
51-	CBAR	525	526	38	40	0.0	0.0	1.	1	+CAR 526
52-	+CAR 526			0.	0.	-.7665	0.	0.	-.7260	
53-	CBAR	527	527	39	41	0.0	0.0	1.	1	+CAR 527
54-	+CAR 527			0.	0.	.7103	0.	0.	.6713	
55-	CBAR	528	528	40	42	0.0	0.0	1.	1	+CAR 528
56-	+CAR 528			0.	0.	-.7260	0.	0.	-.6871	
57-	CBAR	529	529	41	43	0.0	0.0	1.	1	+CAR 529
58-	+CAR 529			0.	0.	.6713	0.	0.	.6114	
59-	CBAR	530	530	42	44	0.0	0.0	1.	1	+CAR 530
60-	+CAR 530			0.	0.	-.6871	0.	0.	-.6324	
61-	CBAR	531	531	43	45	0.0	0.0	1.	1	+CAR 531
62-	+CAR 531			0.	0.	.6114	0.	0.	.5672	
63-	CBAR	532	532	44	46	0.0	0.0	1.	1	+CAR 532
64-	+CAR 532			0.	0.	-.6324	0.	0.	-.5829	
65-	CBAR	533	533	45	47	0.0	0.0	1.	1	+CAR 533
66-	+CAR 533			0.	0.	.5672	0.	0.	.5230	
67-	CBAR	534	534	46	48	0.0	0.0	1.	1	+CAR 534
68-	+CAR 534			0.	0.	-.5829	0.	0.	-.5335	
69-	CBAR	535	535	47	49	0.0	0.0	1.	1	+CAR 535
70-	+CAR 535			0.	0.	.5230	0.	0.	.4683	
71-	CBAR	536	536	48	50	0.0	0.0	1.	1	+CAR 536
72-	+CAR 536			0.	0.	-.5335	0.	0.	-.4788	
73-	CBAR	537	537	49	51	0.0	0.0	1.	1	+CAR 537
74-	+CAR 537			0.	0.	.4683	0.	0.	.4189	
75-	CBAR	538	538	50	52	0.0	0.0	1.	1	+CAR 538
76-	+CAR 538			0.	0.	-.4788	0.	0.	-.4241	
77-	CBAR	539	539	51	53	0.0	0.0	1.	1	+CAR 539
78-	+CAR 539			0.	0.	.4189	0.	0.	.3694	
79-	CBAR	540	540	52	54	0.0	0.0	1.	1	+CAR 540
80-	+CAR 540			0.	0.	-.4241	0.	0.	-.3694	
81-	CBAR	541	541	53	55	0.0	0.0	1.	1	+CAR 541
82-	+CAR 541			0.	0.	.3694	0.	0.	.3095	
83-	CBAR	542	542	54	56	0.0	0.0	1.	1	+CAR 542
84-	+CAR 542			0.	0.	-.3694	0.	0.	-.3095	
85-	CBAR	543	543	55	57	0.0	0.0	1.	1	+CAR 543
86-	+CAR 543			0.	0.	.3095	0.	0.	.2544	
87-	CBAR	544	544	56	58	0.0	0.0	1.	1	+CAR 544
88-	+CAR 544			0.	0.	-.3095	0.	0.	-.2544	
89-	CBAR	545	545	59	61	0.0	0.0	1.	1	+CAR 545
90-	+CAR 545			0.	0.	.7642	0.	0.	.7507	
91-	CBAR	546	546	60	62	0.0	0.0	1.	1	+CAR 546
92-	+CAR 546			0.	0.	-.7799	0.	0.	-.7665	
93-	CBAR	547	547	61	63	0.0	0.0	1.	1	+CAR 547
94-	+CAR 547			0.	0.	.7507	0.	0.	.7103	
95-	CBAR	548	548	62	64	0.0	0.0	1.	1	+CAR 548
96-	+CAR 548			0.	0.	-.7665	0.	0.	-.7260	
97-	CBAR	549	549	63	65	0.0	0.0	1.	1	+CAR 549
98-	+CAR 549			0.	0.	.7103	0.	0.	.6713	
99-	CBAR	550	550	64	66	0.0	0.0	1.	1	+CAR 550
100-	+CAR 550			0.	0.	-.7260	0.	0.	-.6871	

```
B/AL WING STATIC ANALYSIS, EXP. PROP.                              NOVEMBER   2, 1978   NASTRAN 12/16/77    PAGE     5
SKIN CHANGES OF 10-31-78 + NEW G11 OF ELEM 289+290(11-2-78)

                              S O R T E D   B U L K   D A T A   E C H O
  CARD
  COUNT          .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
   101-          CBAR    551     551     65      67      0.0     0.0     1.      1       +CAR 551
   102-          +CAR 551                0.      0.      .6713   0.      0.      .6114
   103-          CBAR    552     552     66      68      0.0     0.0     1.      1       +CAR 552
   104-          +CAR 552                0.      0.      -.6871  0.      0.      -.6324
   105-          CBAR    553     553     67      69      0.0     0.0     1.      1       +CAR 553
   106-          +CAR 553                0.      0.      .6114   0.      0.      .5672
   107-          CBAR    554     554     68      70      0.0     0.0     1.      1       +CAR 554
   108-          +CAR 554                0.      0.      -.6324  0.      0.      -.5829
   109-          CBAR    555     555     69      71      0.0     0.0     1.      1       +CAR 555
   110-          +CAR 555                0.      0.      .5672   0.      0.      .5230
   111-          CBAR    556     556     70      72      0.0     0.0     1.      1       +CAR 556
   112-          +CAR 556                0.      0.      -.5829  0.      0.      -.5335
   113-          CBAR    557     557     71      73      0.0     0.0     1.      1       +CAR 557
   114-          +CAR 557                0.      0.      .5230   0.      0.      .4683
   115-          CBAR    558     558     72      74      0.0     0.0     1.      1       +CAR 558
   116-          +CAR 558                0.      0.      -.5335  0.      0.      -.4788
   117-          CBAR    559     559     73      75      0.0     0.0     1.      1       +CAR 559
   118-          +CAR 559                0.      0.      .4683   0.      0.      .4189
   119-          CBAR    560     560     74      76      0.0     0.0     1.      1       +CAR 560
   120-          +CAR 560                0.      0.      -.4788  0.      0.      -.4241
   121-          CBAR    561     561     75      77      0.0     0.0     1.      1       +CAR 561
   122-          +CAR 561                0.      0.      .4189   0.      0.      .3694
   123-          CBAR    562     562     76      78      0.0     0.0     1.      1       +CAR 562
   124-          +CAR 562                0.      0.      -.4241  0.      0.      -.3694
   125-          CBAR    563     563     77      79      0.0     0.0     1.      1       +CAR 563
   126-          +CAR 563                0.      0.      .3694   0.      0.      .3095
   127-          CBAR    564     564     78      80      0.0     0.0     1.      1       +CAR 564
   128-          +CAR 564                0.      0.      -.3694  0.      0.      -.3095
   129-          CBAR    565     565     79      81      0.0     0.0     1.      1       +CAR 565
   130-          +CAR 565                0.      0.      .3095   0.      0.      .2544
   131-          CBAR    566     566     80      82      0.0     0.0     1.      1       +CAR 566
   132-          +CAR 566                0.      0.      -.3095  0.      0.      -.2544
   133-          CBAR    567     567     83      85      0.0     0.0     1.      1       +CAR 567
   134-          +CAR 567                0.      0.      .7642   0.      0.      .7507
   135-          CBAR    568     568     84      86      0.0     0.0     1.      1       +CAR 568
   136-          +CAR 568                0.      0.      -.7799  0.      0.      -.7665
   137-          CBAR    569     569     85      87      0.0     0.0     1.      1       +CAR 569
   138-          +CAR 569                0.      0.      .7507   0.      0.      .7103
   139-          CBAR    570     570     86      88      0.0     0.0     1.      1       +CAR 570
   140-          +CAR 570                0.      0.      -.7665  0.      0.      -.7260
   141-          CBAR    571     571     87      89      0.0     0.0     1.      1       +CAR 571
   142-          +CAR 571                0.      0.      .7103   0.      0.      .6766
   143-          CBAR    572     572     88      90      0.0     0.0     1.      1       +CAR 572
   144-          +CAR 572                0.      0.      -.7260  0.      0.      -.6871
   145-          CBAR    573     573     89      91      0.0     0.0     1.      1       +CAR 573
   146-          +CAR 573                0.      0.      .6766   0.      0.      .6166
   147-          CBAR    574     574     90      92      0.0     0.0     1.      1       +CAR 574
   148-          +CAR 574                0.      0.      -.6871  0.      0.      -.6324
   149-          CBAR    575     575     91      93      0.0     0.0     1.      1       +CAR 575
   150-          +CAR 575                0.      0.      .6166   0.      0.      .5672
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT        .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
 151-        CBAR    576     576     92      94      0.0     0.0     1.      1       +CAR 576
 152-        +CAR 576                0.      0.      -.6324  0.      0.      -.5829
 153-        CBAR    577     577     93      95      0.0     0.0     1.      1       +CAR 577
 154-        +CAR 577                0.      0.      .5672   0.      0.      .5230
 155-        CBAR    578     578     94      96      0.0     0.0     1.      1       +CAR 578
 156-        +CAR 578                0.      0.      -.5329  0.      0.      -.5335
 157-        CBAR    579     579     95      97      0.0     0.0     1.      1       +CAR 579
 158-        +CAR 579                0.      0.      .5230   0.      0.      .4683
 159-        CBAR    580     580     96      98      0.0     0.0     1.      1       +CAR 580
 160-        +CAR 580                0.      0.      -.5335  0.      0.      -.4788
 161-        CBAR    581     581     97      99      0.0     0.0     1.      1       +CAR 581
 162-        +CAR 581                0.      0.      .4683   0.      0.      .4189
 163-        CBAR    582     582     98      100     0.0     0.0     1.      1       +CAR 582
 164-        +CAR 582                0.      0.      -.4788  0.      0.      -.4241
 165-        CBAR    583     583     99      101     0.0     0.0     1.      1       +CAR 583
 166-        +CAR 583                0.      0.      .4189   0.      0.      .3694
 167-        CBAR    584     584     100     102     0.0     0.0     1.      1       +CAR 584
 168-        +CAR 584                0.      0.      -.4241  0.      0.      -.3694
 169-        CBAR    585     585     101     103     0.0     0.0     1.      1       +CAR 585
 170-        +CAR 585                0.      0.      .3694   0.      0.      .3095
 171-        CBAR    586     586     102     104     0.0     0.0     1.      1       +CAR 586
 172-        +CAR 586                0.      0.      -.3694  0.      0.      -.3095
 173-        CBAR    587     587     103     105     0.0     0.0     1.      1       +CAR 587
 174-        +CAR 587                0.      0.      .3095   0.      0.      .2544
 175-        CBAR    588     588     104     106     0.0     0.0     1.      1       +CAR 588
 176-        +CAR 588                0.      0.      -.3095  0.      0.      -.2544
 177-        CBAR    589     589     107     109     0.0     0.0     1.      1       +CAR 589
 178-        +CAR 589                0.      0.      .7642   0.      0.      .7507
 179-        CBAR    590     590     108     110     0.0     0.0     1.      1       +CAR 590
 180-        +CAR 590                0.      0.      -.7799  0.      0.      -.7665
 181-        CBAR    591     591     109     111     0.0     0.0     1.      1       +CAR 591
 182-        +CAR 591                0.      0.      .7507   0.      -0.375  .7103
 183-        CBAR    592     592     110     112     0.0     0.0     1.      1       +CAR 592
 184-        +CAR 592                0.      0.      -.7665  0.      -0.375  -.7260
 185-        CBAR    595     595     113     115     0.0     0.0     1.      1       +CAR 595
 186-        +CAR 595                0.      0.      .6766   0.      0.      .6219
 187-        CBAR    596     596     114     116     0.0     0.0     1.      1       +CAR 596
 188-        +CAR 596                0.      0.      -.6871  0.      0.      -.6376
 189-        CBAR    597     597     115     117     0.0     0.0     1.      1       +CAR 597
 190-        +CAR 597                0.      0.      .6219   0.      0.      .5724
 191-        CBAR    598     598     116     118     0.0     0.0     1.      1       +CAR 598
 192-        +CAR 598                0.      0.      -.6376  0.      0.      -.5882
 193-        CBAR    599     599     117     119     0.0     0.0     1.      1       +CAR 599
 194-        +CAR 599                0.      0.      .5724   0.      0.      .5283
 195-        CBAR    600     600     118     120     0.0     0.0     1.      1       +CAR 600
 196-        +CAR 600                0.      0.      -.5882  0.      0.      -.5388
 197-        CBAR    601     601     119     121     0.0     0.0     1.      1       +CAR 601
 198-        +CAR 601                0.      0.      .5283   0.      0.      .4788
 199-        CBAR    602     602     120     122     0.0     0.0     1.      1       +CAR 602
 200-        +CAR 602                0.      0.      -.5388  0.      0.      -.4841
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S O R T E D   B U L K   D A T A   E C H O

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 CARD
 COUNT      .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
  201-      CBAR    603     603     121     123     0.0     0.0     1.      1       +CAR 603
  202-      +CAR 603                0.      0.      .4788   0.      0.      .4294
  203-      CBAR    604     604     122     124     0.0     0.0     1.      1       +CAR 604
  204-      +CAR 604                0.      0.      -.4841  0.      0.      -.4294
  205-      CBAR    605     605     123     125     0.0     0.0     1.      1       +CAR 605
  206-      +CAR 605                0.      0.      .4294   0.      0.      .3694
  207-      CBAR    606     606     124     126     0.0     0.0     1.      1       +CAR 606
  208-      +CAR 606                0.      0.      -.4294  0.      0.      -.3694
  209-      CBAR    607     607     125     127     0.0     0.0     1.      1       +CAR 607
  210-      +CAR 607                0.      0.      .3694   0.      0.      .3095
  211-      CBAR    608     608     126     128     0.0     0.0     1.      1       +CAR 608
  212-      +CAR 608                0.      0.      -.3694  0.      0.      -.3095
  213-      CBAR    609     609     127     129     0.0     0.0     1.      1       +CAR 609
  214-      +CAR 609                0.      0.      .3095   0.      0.      .2544
  215-      CBAR    610     610     128     130     0.0     0.0     1.      1       +CAR 610
  216-      +CAR 610                0.      0.      -.3095  0.      0.      -.2544
  217-      CBAR    611     611     131     133     0.0     0.0     1.      1       +CAR 611
  218-      +CAR 611                0.      0.      .7365   -1.00   -0.681  0.659
  219-      CBAR    612     612     132     134     0.0     0.0     1.      1       +CAR 612
  220-      +CAR 612                0.      0.      -.7470  -1.000  -0.681  -0.648
  221-      CBAR    613     613     133     135     0.0     0.0     1.      1       +CAR 613
  222-      +CAR 613                -1.000  -0.681  0.659   0.      0.      .6324
  223-      CBAR    614     614     134     136     0.0     0.0     1.      1       +CAR 614
  224-      +CAR 614                -1.000  -0.681  -0.648  0.      0.      -.6481
  225-      CBAR    615     615     135     137     0.0     0.0     1.      1       +CAR 615
  226-      +CAR 615                0.      0.      .6324   0.      0.      .5882
  227-      CBAR    616     616     136     138     0.0     0.0     1.      1       +CAR 616
  228-      +CAR 616                0.      0.      -.6481  0.      0.      -.5987
  229-      CBAR    617     617     137     139     0.0     0.0     1.      1       +CAR 617
  230-      +CAR 617                0.      0.      .5882   0.      0.      .5388
  231-      CBAR    618     618     138     140     0.0     0.0     1.      1       +CAR 618
  232-      +CAR 618                0.      0.      -.5987  0.      0.      -.5440
  233-      CBAR    619     619     139     141     0.0     0.0     1.      1       +CAR 619
  234-      +CAR 619                0.      0.      .5388   0.      0.      .4788
  235-      CBAR    620     620     140     142     0.0     0.0     1.      1       +CAR 620
  236-      +CAR 620                0.      0.      -.5440  0.      0.      -.4841
  237-      CBAR    621     621     141     143     0.0     0.0     1.      1       +CAR 621
  238-      +CAR 621                0.      0.      .4788   0.      0.      .4294
  239-      CBAR    622     622     142     144     0.0     0.0     1.      1       +CAR 622
  240-      +CAR 622                0.      0.      -.4841  0.      0.      -.4294
  241-      CBAR    623     623     143     145     0.0     0.0     1.      1       +CAR 623
  242-      +CAR 623                0.      0.      .4294   0.      0.      .3694
  243-      CBAR    624     624     144     146     0.0     0.0     1.      1       +CAR 624
  244-      +CAR 624                0.      0.      -.4294  0.      0.      -.3694
  245-      CBAR    625     625     145     147     0.0     0.0     1.      1       +CAR 625
  246-      +CAR 625                0.      0.      .3694   0.      0.      .3095
  247-      CBAR    626     626     146     148     0.0     0.0     1.      1       +CAR 626
  248-      +CAR 626                0.      0.      -.3694  0.      0.      -.3095
  249-      CBAR    627     627     147     149     0.0     0.0     1.      1       +CAR 627
  250-      +CAR 627                0.      0.      .3095   0.      0.      .2544
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SORTED BULK DATA ECHO

CARD COUNT	1	2	3	4	5	6	7	8	9	10
251-	CBAR	628	628	148	150	0.0	0.0	1.	1	+CAR 628
252-	+CAR 628			0.	0.	-.3095	0.	0.	-.2544	
253-	CBAR	629	629	151	153	0.0	0.0	1.	1	+CAR 629
254-	+CAR 629			0.	0.	.4440	-1.000	-0.594	0.411	
255-	CBAR	630	630	152	154	0.0	0.0	1.	1	+CAR 630
256-	+CAR 630			0.	0.	-.4545	-1.000	-0.594	-0.417	
257-	CBAR	631	631	153	155	0.0	0.0	1.	1	+CAR 631
258-	+CAR 631			-1.000	-0.594	-0.417	0.	0.	.3826	
259-	CBAR	632	632	154	156	0.0	0.0	1.	1	+CAR 632
260-	+CAR 632			-1.000	-0.594	-0.417	0.	0.	-.3878	
261-	CBAR	633	633	155	157	0.0	0.0	1.	1	+CAR 633
262-	+CAR 633			0.	0.	.3826	0.	0.	.3571	
263-	CBAR	634	634	156	158	0.0	0.0	1.	1	+CAR 634
264-	+CAR 634			0.	0.	-.3878	0.	0.	-.3571	
265-	CBAR	635	635	157	159	0.0	0.0	1.	1	+CAR 635
266-	+CAR 635			0.	0.	.3571	0.	0.	.3212	
267-	CBAR	636	636	158	160	0.0	0.0	1.	1	+CAR 636
268-	+CAR 636			0.	0.	-.3571	0.	0.	-.3212	
269-	CBAR	637	637	159	161	0.0	0.0	1.	1	+CAR 637
270-	+CAR 637			0.	0.	.3212	0.	0.	.2852	
271-	CBAR	638	638	160	162	0.0	0.0	1.	1	+CAR 638
272-	+CAR 638			0.	0.	-.3212	0.	0.	-.2852	
273-	CBAR	639	639	161	163	0.0	0.0	1.	1	+CAR 639
274-	+CAR 639			0.	0.	.2852	0.	0.	.2492	
275-	CBAR	640	640	162	164	0.0	0.0	1.	1	+CAR 640
276-	+CAR 640			0.	0.	-.2852	0.	0.	-.2492	
277-	CBAR	641	641	163	165	0.0	0.0	1.	1	+CAR 641
278-	+CAR 641			0.	0.	.2492	0.	0.	.2133	
279-	CBAR	642	642	164	166	0.0	0.0	1.	1	+CAR 642
280-	+CAR 642			0.	0.	-.2492	0.	0.	-.2133	
281-	CBAR	643	643	165	167	0.0	0.0	1.	1	+CAR 643
282-	+CAR 643			0.	0.	.2133	0.	0.	.1773	
283-	CBAR	644	644	166	168	0.0	0.0	1.	1	+CAR 644
284-	+CAR 644			0.	0.	-.2133	0.	0.	-.1773	
285-	CBAR	645	645	167	169	0.0	0.0	1.	1	+CAR 645
286-	+CAR 645			0.	0.	.1773	0.	0.	.1442	
287-	CBAR	646	646	168	170	0.0	0.0	1.	1	+CAR 646
288-	+CAR 646			0.	0.	-.1773	0.	0.	-.1442	
289-	CBAR	701	701	11	12	.0000	4.5000	0.0	1	+CAR 701
290-	+CAR 701			0.	0.	0.	0.	0.	0.	
291-	CBAR	702	702	13	14	.0000	4.5000	0.0	1	+CAR 702
292-	+CAR 702			0.	0.	0.	0.	0.	0.	
293-	CBAR	703	703	15	16	.0000	4.5000	0.0	1	+CAR 703
294-	+CAR 703			0.	0.375	0.	0.	0.375	0.	
295-	CBAR	704	704	15	16	-6.0768	5.0000	0.0	1	+CAR 704
296-	+CAR 704			0.	0.	0.	0.	0.	0.	
297-	CBAR	705	705	17	18	-6.0768	5.0000	0.0	1	+CAR 705
298-	+CAR 705			0.	0.	0.	0.	0.	0.	
299-	CBAR	706	706	19	20	-6.0768	5.0000	0.0	1	+CAR 706
300-	+CAR 706			0.	0.	0.	0.	0.	0.	

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
301-	CBAR	707	707	21	22	-6.0768	5.0000	0.0	1	+CAR 707
302-	+CAR 707			0.	0.	0.	0.	0.	0.	
303-	CBAR	708	708	23	24	-6.0768	5.0000	0.0	1	+CAR 708
304-	+CAR 708			0.	0.	0.	0.	0.	0.	
305-	CBAR	709	709	25	26	-6.0768	5.0000	0.0	1	+CAR 709
306-	+CAR 709			0.	0.	0.	0.	0.	0.	
307-	CBAR	710	710	27	28	-6.0768	5.0000	0.0	1	+CAR 710
308-	+CAR 710			0.	0.	0.	0.	0.	0.	
309-	CBAR	711	711	29	30	-6.0768	5.0000	0.0	1	+CAR 711
310-	+CAR 711			0.	0.	0.	0.	0.	0.	
311-	CBAR	712	712	31	32	-5.5907	4.6000	0.0	1	+CAR 712
312-	+CAR 712			0.	0.	0.	0.	0.	0.	
313-	CBAR	713	713	33	34	-5.5907	4.6000	0.0	1	+CAR 713
314-	+CAR 713			0.	0.	0.	0.	0.	0.	
315-	CBAR	714	714	35	36	.0000	4.5000	0.0	1	+CAR 714
316-	+CAR 714			0.	0.	0.	0.	0.	0.	
317-	CBAR	715	715	37	38	.0000	4.5000	0.0	1	+CAR 715
318-	+CAR 715			0.	0.	0.	0.	0.	0.	
319-	CBAR	716	716	39	40	.0000	4.5000	0.0	1	+CAR 716
320-	+CAR 716			0.	0.	0.	0.	0.	0.	
321-	CBAR	717	717	39	40	-5.4597	5.0000	0.0	1	+CAR 717
322-	+CAR 717			0.	0.	0.	0.	0.	0.	
323-	CBAR	718	718	41	42	-5.4597	5.0000	0.0	1	+CAR 718
324-	+CAR 718			0.	0.	0.	0.	0.	0.	
325-	CBAR	719	719	43	44	-5.4597	5.0000	0.0	1	+CAR 719
326-	+CAR 719			0.	0.	0.	0.	0.	0.	
327-	CBAR	720	720	45	46	-5.4597	5.0000	0.0	1	+CAR 720
328-	+CAR 720			0.	0.	0.	0.	0.	0.	
329-	CBAR	721	721	47	48	-5.4597	5.0000	0.0	1	+CAR 721
330-	+CAR 721			0.	0.	0.	0.	0.	0.	
331-	CBAR	722	722	49	50	-5.4597	5.0000	0.0	1	+CAR 722
332-	+CAR 722			0.	0.	0.	0.	0.	0.	
333-	CBAR	723	723	51	52	-5.4597	5.0000	0.0	1	+CAR 723
334-	+CAR 723			0.	0.	0.	0.	0.	0.	
335-	CBAR	724	724	53	54	-5.4597	5.0000	0.0	1	+CAR 724
336-	+CAR 724			0.	0.	0.	0.	0.	0.	
337-	CBAR	725	725	55	56	-5.0229	4.6000	0.0	1	+CAR 725
338-	+CAR 725			0.	0.	0.	0.	0.	0.	
339-	CBAR	726	726	57	58	-5.0229	4.6000	0.0	1	+CAR 726
340-	+CAR 726			0.	0.	0.	0.	0.	0.	
341-	CBAR	727	727	59	60	.0000	4.5000	0.0	1	+CAR 727
342-	+CAR 727			0.	0.	0.	0.	0.	0.	
343-	CBAR	728	728	61	62	.0000	4.5000	0.0	1	+CAR 728
344-	+CAR 728			0.	0.	0.	0.	0.	0.	
345-	CBAR	729	729	63	64	.0000	4.5000	0.0	1	+CAR 729
346-	+CAR 729			0.	0.	0.	0.	0.	0.	
347-	CBAR	730	730	63	64	-4.8470	5.0000	0.0	1	+CAR 730
348-	+CAR 730			0.	0.	0.	0.	0.	0.	
349-	CBAR	731	731	65	66	-4.8470	5.0000	0.0	1	+CAR 731
350-	+CAR 731			0.	0.	0.	0.	0.	0.	

B/AL WING STATIC ANALYSIS, EXP. PROP.
SKIN CHANGES OF 10-31-78 + NEW G11 OF ELEM 289+290(11-2-78)

S O R T E D B U L K D A T A E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
351-	CBAR	732	732	67	68	-4.8470	5.0000	0.0	1	+CAR 732
352-	+CAR 732			0.	0.	0.	0.	0.	0.	
353-	CBAR	733	733	69	70	-4.8470	5.0000	0.0	1	+CAR 733
354-	+CAR 733			0.	0.	0.	0.	0.	0.	
355-	CBAR	734	734	71	72	-4.8470	5.0000	0.0	1	+CAR 734
356-	+CAR 734			0.	0.	0.	0.	0.	0.	
357-	CBAR	735	735	73	74	-4.8470	5.0000	0.0	1	+CAR 735
358-	+CAR 735			0.	0.	0.	0.	0.	0.	
359-	CBAR	736	736	75	76	-4.8470	5.0000	0.0	1	+CAR 736
360-	+CAR 736			0.	0.	0.	0.	0.	0.	
361-	CBAR	737	737	77	78	-4.8470	5.0000	0.0	1	+CAR 737
362-	+CAR 737			0.	0.	0.	0.	0.	0.	
363-	CBAR	738	738	79	80	-4.4592	4.6000	0.0	1	+CAR 738
364-	+CAR 738			0.	0.	0.	0.	0.	0.	
365-	CBAR	739	739	81	82	-4.4592	4.6000	0.0	1	+CAR 739
366-	+CAR 739			0.	0.	0.	0.	0.	0.	
367-	CBAR	740	740	83	84	.0000	4.5000	0.0	1	+CAR 740
368-	+CAR 740			0.	0.	0.	0.	0.	0.	
369-	CBAR	741	741	85	86	.0000	4.5000	0.0	1	+CAR 741
370-	+CAR 741			0.	0.	0.	0.	0.	0.	
371-	CBAR	742	742	87	88	.0000	4.5000	0.0	1	+CAR 742
372-	+CAR 742			0.	0.	0.	0.	0.	0.	
373-	CBAR	743	743	87	88	-4.2343	5.0000	0.0	1	+CAR 743
374-	+CAR 743			0.	0.	0.	0.	0.	0.	
375-	CBAR	744	744	89	90	-4.2343	5.0000	0.0	1	+CAR 744
376-	+CAR 744			0.	0.	0.	0.	0.	0.	
377-	CBAR	745	745	91	92	-4.2343	5.0000	0.0	1	+CAR 745
378-	+CAR 745			0.	0.	0.	0.	0.	0.	
379-	CBAR	746	746	93	94	-4.2343	5.0000	0.0	1	+CAR 746
380-	+CAR 746			0.	0.	0.	0.	0.	0.	
381-	CBAR	747	747	95	96	-4.2343	5.0000	0.0	1	+CAR 747
382-	+CAR 747			0.	0.	0.	0.	0.	0.	
383-	CBAR	748	748	97	98	-4.2343	5.0000	0.0	1	+CAR 748
384-	+CAR 748			0.	0.	0.	0.	0.	0.	
385-	CBAR	749	749	99	100	-4.2343	5.0000	0.0	1	+CAR 749
386-	+CAR 749			0.	0.	0.	0.	0.	0.	
387-	CBAR	750	750	101	102	-4.2343	5.0000	0.0	1	+CAR 750
388-	+CAR 750			0.	0.	0.	0.	0.	0.	
389-	CBAR	751	751	103	104	-3.8956	4.6000	0.0	1	+CAR 751
390-	+CAR 751			0.	0.	0.	0.	0.	0.	
391-	CBAR	752	752	105	106	-3.8956	4.6000	0.0	1	+CAR 752
392-	+CAR 752			0.	0.	0.	0.	0.	0.	
393-	CBAR	753	753	107	108	.0000	4.5000	0.0	1	+CAR 753
394-	+CAR 753			0.	0.	0.	0.	0.	0.	
395-	CBAR	754	754	109	110	.0000	4.5000	0.0	1	+CAR 754
396-	+CAR 754			0.	0.	0.	0.	0.	0.	
397-	CBAR	755	755	111	112	.0000	4.5000	0.0	1	+CAR 755
398-	+CAR 755			0.	-0.375	0.	0.	-0.375	0.	
399-	CBAR	756	756	111	112	-3.8042	5.0000	0.0	1	+CAR 756
400-	+CAR 756			0.	-1.097	0.	0.	-1.097	0.	

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CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
401-	CBAR	757	757	113	114	-3.8042	5.0000	0.0	1	+CAR 757
402-	+CAR 757			0.	0.	0.	0.	0.	0.	
403-	CBAR	758	758	115	116	-3.8042	5.0000	0.0	1	+CAR 758
404-	+CAR 758			0.	0.	0.	0.	0.	0.	
405-	CBAR	759	759	117	118	-3.8042	5.0000	0.0	1	+CAR 759
406-	+CAR 759			0.	0.	0.	0.	0.	0.	
407-	CBAR	760	760	119	120	-3.8042	5.0000	0.0	1	+CAR 760
408-	+CAR 760			0.	0.	0.	0.	0.	0.	
409-	CBAR	761	761	121	122	-3.8042	5.0000	0.0	1	+CAR 761
410-	+CAR 761			0.	0.	0.	0.	0.	0.	
411-	CBAR	762	762	123	124	-3.8042	5.0000	0.0	1	+CAR 762
412-	+CAR 762			0.	0.	0.	0.	0.	0.	
413-	CBAR	763	763	125	126	-3.8042	5.0000	0.0	1	+CAR 763
414-	+CAR 763			0.	0.	0.	0.	0.	0.	
415-	CBAR	764	764	127	128	-3.4998	4.6000	0.0	1	+CAR 764
416-	+CAR 764			0.	0.	0.	0.	0.	0.	
417-	CBAR	765	765	129	130	-3.4998	4.6000	0.0	1	+CAR 765
418-	+CAR 765			0.	0.	0.	0.	0.	0.	
419-	CBAR	766	766	131	132	-3.4029	5.0000	0.0	1	+CAR 766
420-	+CAR 766			0.	0.	0.	0.	0.	0.	
421-	CBAR	767	767	133	134	-3.4029	5.0000	0.0	1	+CAR 767
422-	+CAR 767			-1.000	-0.681	0.	-1.000	-0.681	0.	
423-	CBAR	768	768	135	136	-3.4029	5.0000	0.0	1	+CAR 768
424-	+CAR 768			0.	0.	0.	0.	0.	0.	
425-	CBAR	769	769	137	138	-3.4029	5.0000	0.0	1	+CAR 769
426-	+CAR 769			0.	0.	0.	0.	0.	0.	
427-	CBAR	770	770	139	140	-3.4029	5.0000	0.0	1	+CAR 770
428-	+CAR 770			0.	0.	0.	0.	0.	0.	
429-	CBAR	771	771	141	142	-3.4029	5.0000	0.0	1	+CAR 771
430-	+CAR 771			0.	0.	0.	0.	0.	0.	
431-	CBAR	772	772	143	144	-3.4029	5.0000	0.0	1	+CAR 772
432-	+CAR 772			0.	0.	0.	0.	0.	0.	
433-	CBAR	773	773	145	146	-3.4029	5.0000	0.0	1	+CAR 773
434-	+CAR 773			0.	0.	0.	0.	0.	0.	
435-	CBAR	774	774	147	148	-3.1307	4.6000	0.0	1	+CAR 774
436-	+CAR 774			0.	0.	0.	0.	0.	0.	
437-	CBAR	775	775	149	150	-3.1307	4.6000	0.0	1	+CAR 775
438-	+CAR 775			0.	0.	0.	0.	0.	0.	
439-	CBAR	776	776	151	152	-2.9720	5.0000	0.0	1	+CAR 776
440-	+CAR 776			0.	0.	0.	0.	0.	0.	
441-	CBAR	777	777	153	154	-2.9720	5.0000	0.0	1	+CAR 777
442-	+CAR 777			-1.000	-0.594	0.	-1.000	-0.594	0.	
443-	CBAR	778	778	155	156	-2.9720	5.0000	0.0	1	+CAR 778
444-	+CAR 778			0.	0.	0.	0.	0.	0.	
445-	CBAR	779	779	157	158	-2.9720	5.0000	0.0	1	+CAR 779
446-	+CAR 779			0.	0.	0.	0.	0.	0.	
447-	CBAR	780	780	159	160	-2.9720	5.0000	0.0	1	+CAR 780
448-	+CAR 780			0.	0.	0.	0.	0.	0.	
449-	CBAR	781	781	161	162	-2.9720	5.0000	0.0	1	+CAR 781
450-	+CAR 781			0.	0.	0.	0.	0.	0.	

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CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
451-	CBAR	732	732	163	164	-2.9720	5.0000	0.0	1	+CAR 782
452-	+CAR 782			0.	0.	0.	0.	0.	0.	
453-	CBAR	733	783	165	166	-2.9720	5.0000	0.0	1	+CAR 783
454-	+CAR 783			0.	0.	0.	0.	0.	0.	
455-	CBAR	734	784	167	168	-2.7342	4.6000	0.0	1	+CAR 784
456-	+CAR 784			0.	0.	0.	0.	0.	0.	
457-	CBAR	785	785	169	170	-2.7342	4.6000	0.0	1	+CAR 785
458-	+CAR 785			0.	0.	0.	0.	0.	0.	
459-	CBAR	1101	1101	1	15	0.0	0.0	1.	1	+CAR1101
460-	+CAR1101			0.	0.	-.0000	2.250	2.735	.7103	
461-	CBAR	1102	1102	1	16	0.0	0.0	1.	1	+CAR1102
462-	+CAR1102			0.	0.	-.0000	2.250	2.735	-.7250	
463-	CBAR	1103	1103	15	39	0.0	0.0	1.	1	+CAR1103
464-	+CAR1103			0.	0.	.7103	0.	0.	.7103	
465-	CBAR	1104	1104	16	40	0.0	0.0	1.	1	+CAR1104
466-	+CAR1104			0.	0.	-.7260	0.	0.	-.7260	
467-	CBAR	1105	1105	39	63	0.0	0.0	1.	1	+CAR1105
468-	+CAR1105			0.	0.	.7103	0.	0.	.7103	
469-	CBAR	1106	1106	40	64	0.0	0.0	1.	1	+CAR1106
470-	+CAR1106			0.	0.	-.7260	0.	0.	-.7250	
471-	CBAR	1107	1107	63	87	0.0	0.0	1.	1	+CAR1107
472-	+CAR1107			0.	0.	.7103	0.	0.	.7103	
473-	CBAR	1108	1108	64	88	0.0	0.0	1.	1	+CAR1108
474-	+CAR1108			0.	0.	-.7260	0.	0.	-.7260	
475-	CBAR	1109	1109	87	111	0.0	0.0	1.	1	+CAR1109
476-	+CAR1109			0.	0.	.7103	0.	0.	.7103	
477-	CBAR	1110	1110	88	112	0.0	0.0	1.	1	+CAR1110
478-	+CAR1110			0.	0.	-.7260	0.	0.	-.7260	
479-	CBAR	1111	1111	181	131	.0	.0	1.0	1	+C5
480-	+C5			0.0	0.0	0.695	0.0	0.0	0.731	
481-	CBAR	1112	1112	182	132	.0	.0	1.0	1	+C6
482-	+C6			0.0	0.0	-0.708	0.0	0.0	-0.731	
483-	CBAR	1113	1113	131	151	0.0	0.0	1.	1	+CAR1113
484-	+CAR1113			0.	0.	.7310	0.	0.	.4230	
485-	CBAR	1114	1114	132	152	0.0	0.0	1.	1	+CAR1114
486-	+CAR1114			0.	0.	-.7310	0.	0.	-.4330	
487-	CBAR	1115	1115	151	171	0.0	0.0	1.	1	+CAR1115
488-	+CAR1115			0.	0.	.4440	0.	0.	-.0000	
489-	CBAR	1116	1116	152	171	0.0	0.0	1.	1	+CAR1116
490-	+CAR1116			0.	0.	-.4545	0.	0.	-.0000	
491-	CBAR	1117	1117	10	33	0.0	0.0	1.	1	+CAR1117
492-	+CAR1117			0.	0.	-.0000	0.	0.	.2544	
493-	CBAR	1118	1118	10	34	0.0	0.0	1.	1	+CAR1118
494-	+CAR1118			0.	0.	-.0000	0.	0.	-.2544	
495-	CBAR	1119	1119	33	57	0.0	0.0	1.	1	+CAR1119
496-	+CAR1119			0.	0.	.2544	0.	0.	.2544	
497-	CBAR	1120	1120	34	58	0.0	0.0	1.	1	+CAR1120
498-	+CAR1120			0.	0.	-.2544	0.	0.	-.2544	
499-	CBAR	1121	1121	57	81	0.0	0.0	1.	1	+CAR1121
500-	+CAR1121			0.	0.	.2544	0.	0.	.2544	

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CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
501-	CBAR	1122	1122	59	82	0.0	0.0	1.	1	+CAR1122
502-	+CAR1122			0.	0.	-.2544	0.	0.	-.2544	
503-	CBAR	1123	1123	81	105	0.0	0.0	1.	1	+CAR1123
504-	+CAR1123			0.	0.	.2544	0.	0.	.2544	
505-	CBAR	1124	1124	82	106	0.0	0.0	1.	1	+CAR1124
506-	+CAR1124			0.	0.	-.2544	0.	0.	-.2544	
507-	CBAR	1125	1125	105	129	0.0	0.0	1.	1	+CAR1125
508-	+CAR1125			0.	0.	.2544	0.	0.	.2544	
509-	CBAR	1126	1126	106	130	0.0	0.0	1.	1	+CAR1126
510-	+CAR1126			0.	0.	-.2544	0.	0.	-.2544	
511-	CBAR	1127	1127	129	149	0.0	0.0	1.	1	+CAR1127
512-	+CAR1127			0.	0.	.2544	0.	0.	.2544	
513-	CBAR	1128	1128	130	150	0.0	0.0	1.	1	+CAR1128
514-	+CAR1128			0.	0.	-.2544	0.	0.	-.2544	
515-	CBAR	1129	1129	149	169	0.0	0.0	1.	1	+CAR1129
516-	+CAR1129			0.	0.	.2544	0.	0.	.1442	
517-	CBAR	1130	1130	150	170	0.0	0.0	1.	1	+CAR1130
518-	+CAR1130			0.	0.	-.2544	0.	0.	-.1442	
519-	CBAR	1131	1131	169	180	0.0	0.0	1.	1	+CAR1131
520-	+CAR1131			0.	0.	.1442	0.	0.	-.0000	
521-	CBAR	1132	1132	170	180	0.0	0.0	1.	1	+CAR1132
522-	+CAR1132			0.	0.	-.1442	0.	0.	-.0000	
523-	CBAR	1301	1301	15	16	1.0000	.0000	0.0	1	+CAR1301
524-	+CAR1301			2.250	2.735	0.	2.250	2.735	0.	
525-	CBAR	1302	1302	15	16	1.0000	.0000	0.0	1	+CAR1302
526-	+CAR1302			0.	0.	0.	0.	0.	0.	
527-	CBAR	1303	1303	39	40	1.0000	.0000	0.0	1	+CAR1303
528-	+CAR1303			0.	0.	0.	0.	0.	0.	
529-	CBAR	1304	1304	63	64	1.0000	.0000	0.0	1	+CAR1304
530-	+CAR1304			0.	0.	0.	0.	0.	0.	
531-	CBAR	1305	1305	87	88	1.0000	.0000	0.0	1	+CAR1305
532-	+CAR1305			0.	0.	0.	0.	0.	0.	
533-	CBAR	1306	1306	111	112	1.0000	.0000	0.0	1	+CAR1306
534-	+CAR1306			0.	0.	0.	0.	0.	0.	
535-	CBAR	1307	1307	111	112	1.0000	.0000	0.0	1	+CAR1307
536-	+CAR1307			2.250	0.615	0.	2.250	0.615	0.	
537-	CBAR	1308	1308	131	132	1.0000	.0000	0.0	1	+CAR1308
538-	+CAR1308			0.	0.	0.	0.	0.	0.	
539-	CBAR	1309	1309	151	152	1.0000	.0000	0.0	1	+CAR1309
540-	+CAR1309			0.	0.	0.	0.	0.	0.	
541-	CBAR	1310	1310	33	34	1.0000	.0000	0.0	1	+CAR1310
542-	+CAR1310			0.	0.	0.	0.	0.	0.	
543-	CBAR	1311	1311	57	58	1.0000	.0000	0.0	1	+CAR1311
544-	+CAR1311			0.	0.	0.	0.	0.	0.	
545-	CBAR	1312	1312	81	82	1.0000	.0000	0.0	1	+CAR1312
546-	+CAR1312			0.	0.	0.	0.	0.	0.	
547-	CBAR	1313	1313	105	106	1.0000	.0000	0.0	1	+CAR1313
548-	+CAR1313			0.	0.	0.	0.	0.	0.	
549-	CBAR	1314	1314	129	130	1.0000	.0000	0.0	1	+CAR1314
550-	+CAR1314			0.	0.	0.	0.	0.	0.	

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CARD COUNT	1	2	3	4	5	6	7	8	9	10
551-	CBAR	1315	1315	149	150	1.0000	.0000	0.0	1	+CAR1315
552-	+CAR1315			0.	0.	0.	0.	0.	0.	
553-	CBAR	1316	1316	169	170	1.0000	.0000	0.0	1	+CAR1316
554-	+CAR1316			0.	0.	0.	0.	0.	0.	
555-	CBAR	1317	757	131	132	-3.8042	5.0	.0	1	
556-	CBAR	1318	593	111	181	.0	.0	1.0	1	+C2
557-	+C2			0.0	-1.097	0.71	0.0	0.0	0.695	
558-	CBAR	1319	593	181	113	.0	.0	1.0	1	+C1
559-	+C1			0.0	0.0	0.695	0.0	0.0	0.677	
560-	CBAR	1320	594	112	182	.0	.0	1.0	1	+C4
561-	+C4			0.0	-1.097	-0.726	0.0	0.0	-0.708	
562-	CBAR	1321	594	132	114	.0	.0	1.0	1	+C3
563-	+C3			0.0	0.0	-0.708	0.0	0.0	-0.687	
564-	CBAR	2001	2001	11	35	12			2	+CAR2001
565-	+CAR2001			0.	0.	.113	0.	0.	.113	
566-	CBAR	2002	2001	12	36	11			2	+CAR2002
567-	+CAR2002			0.	0.	-.129	0.	0.	-.129	
568-	CBAR	2003	2001	35	59	36			2	+CAR2003
569-	+CAR2003			0.	0.	.113	0.	0.	.113	
570-	CBAR	2004	2001	36	60	35			2	+CAR2004
571-	+CAR2004			0.	0.	-.129	0.	0.	-.129	
572-	CBAR	2005	2001	59	83	60			2	+CAR2005
573-	+CAR2005			0.	0.	.113	0.	0.	.113	
574-	CBAR	2006	2001	60	84	59			2	+CAR2006
575-	+CAR2006			0.	0.	-.129	0.	0.	-.129	
576-	CBAR	2007	2001	83	107	84			2	+CAR2007
577-	+CAR2007			0.	0.	.113	0.	0.	.113	
578-	CBAR	2008	2001	84	108	83			2	+CAR2008
579-	+CAR2008			0.	0.	-.129	0.	0.	-.129	
580-	CONROD	1	15	16	11	.5	0.0	0.0	0.0	
581-	CONROD	2	39	40	11	.5	0.0	0.0	0.0	
582-	CONROD	3	63	64	11	.5	0.0	0.0	0.0	
583-	CONROD	4	87	88	11	.5	0.0	0.0	0.0	
584-	CONROD	5	111	112	11	.5	0.0	0.0	0.0	
585-	CORD2R	1	0	0.0	0.0	0.0	0.0	0.0	1.	+CS1
586-	+CS1	1.	0.	0.						
587-	CQUAD1	289	1113	35	11	13	37	+90.		
588-	CQUAD1	290	1216	36	12	14	33	+90.		
589-	CQUAD1	291	1113	37	13	15	39	+90.		
590-	CQUAD1	292	1216	38	14	16	40	+90.		
591-	CQUAD1	293	1113	59	35	37	61	+90.		
592-	CQUAD1	294	1216	60	35	38	62	+90.		
593-	CQUAD1	295	1113	61	37	39	63	+90.		
594-	CQUAD1	296	1216	62	38	40	64	+90.		
595-	CQUAD1	297	1113	83	59	61	85	+90.		
596-	CQUAD1	298	1216	84	60	62	86	+90.		
597-	CQUAD1	299	1113	85	61	63	87	+90.		
598-	CQUAD1	300	1216	86	62	64	88	+90.		
599-	CQUAD1	301	301	107	83	85	109	+90.		
600-	CQUAD1	302	301	108	84	86	110	+90.		

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CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 .. 9 .. 10 .
601-	CQUAD1	303	301	109	85	87	111	+90.
602-	CQUAD1	304	301	110	86	88	112	+90.
603-	CTRIA1	1	1011	15	1	2	-45.	
604-	CTRIA1	2	1011	16	1	2	-45.	
605-	CTRIA1	3	1011	2	17	15	-45.	
606-	CTRIA1	4	1011	2	18	16	-45.	
607-	CTRIA1	5	1011	17	2	3	-45.	
608-	CTRIA1	6	1011	18	2	3	-45.	
609-	CTRIA1	7	1011	3	19	17	-45.	
610-	CTRIA1	8	1011	[illegible]	20	18	-45.	
611-	CTRIA1	9	1011	19	3	4	-45.	
612-	CTRIA1	10	1011	20	3	4	-45.	
613-	CTRIA1	11	1011	4	21	19	-45.	
614-	CTRIA1	12	1011	4	22	20	-45.	
615-	CTRIA1	13	1011	21	4	5	-45.	
616-	CTRIA1	14	1011	22	4	5	-45.	
617-	CTRIA1	15	1011	5	23	21	-45.	
618-	CTRIA1	16	1011	5	24	22	-45.	
619-	CTRIA1	17	1011	23	5	6	-45.	
620-	CTRIA1	18	1011	24	5	6	-45.	
621-	CTRIA1	19	1011	6	25	23	-45.	
622-	CTRIA1	20	1011	6	26	24	-45.	
623-	CTRIA1	21	1011	25	6	7	-45.	
624-	CTRIA1	22	1011	26	6	7	-45.	
625-	CTRIA1	23	1011	7	27	25	-45.	
626-	CTRIA1	24	1011	7	28	26	-45.	
627-	CTRIA1	25	1011	27	7	8	-45.	
628-	CTRIA1	26	1011	28	7	8	-45.	
629-	CTRIA1	27	1011	8	29	27	-45.	
630-	CTRIA1	28	1011	8	30	28	-45.	
631-	CTRIA1	29	1011	29	8	9	-45.	
632-	CTRIA1	30	1011	30	8	9	-45.	
633-	CTRIA1	31	1011	9	31	29	-45.	
634-	CTRIA1	32	1011	9	32	30	-45.	
635-	CTRIA1	33	1011	31	9	10	-45.	
636-	CTRIA1	34	1011	32	9	10	-45.	
637-	CTRIA1	35	1011	10	33	31	-45.	
638-	CTRIA1	36	1011	10	34	32	-45.	
639-	CTRIA1	37	1110	39	15	17	-45.	
640-	CTRIA1	38	1216	40	16	18	-45.	
641-	CTRIA1	39	1109	17	41	39	-45.	
642-	CTRIA1	40	1216	18	42	40	-45.	
643-	CTRIA1	41	1108	41	17	19	-45.	
644-	CTRIA1	42	1216	42	18	20	-45.	
645-	CTRIA1	43	1107	19	43	41	-45.	
646-	CTRIA1	44	1212	20	44	42	-45.	
647-	CTRIA1	45	1107	43	19	21	-45.	
648-	CTRIA1	46	1212	44	20	22	-45.	
649-	CTRIA1	47	1106	21	45	43	-45.	
650-	CTRIA1	48	1210	22	46	44	-45.	

SORTED BULK DATA ECHO

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
651-	CTRIA1	49	1106	45	21	23	-45.			
652-	CTRIA1	50	1209	46	22	24				
653-	CTRIA1	51	1105	23	47	45	-45.			
654-	CTRIA1	52	1209	24	48	46	-45.			
655-	CTRIA1	53	1105	47	23	25	-45.			
656-	CTRIA1	54	1208	48	24	26	-45.			
657-	CTRIA1	55	1104	25	49	47	-45.			
658-	CTRIA1	56	1207	26	50	48	-45.			
659-	CTRIA1	57	1104	49	25	27	-45.			
660-	CTRIA1	58	1207	50	26	28	-45.			
661-	CTRIA1	59	1104	27	51	49	-45.			
662-	CTRIA1	60	1206	28	52	50	-45.			
663-	CTRIA1	61	1104	51	27	29	-45.			
664-	CTRIA1	62	1205	52	28	30	-45.			
665-	CTRIA1	63	1104	29	53	51	-45.			
666-	CTRIA1	64	1205	30	54	52	-45.			
667-	CTRIA1	65	1104	53	29	31	-45.			
668-	CTRIA1	66	1204	54	30	32	-45.			
669-	CTRIA1	67	1104	31	55	53	-45.			
670-	CTRIA1	68	1204	32	56	54	-45.			
671-	CTRIA1	69	1104	55	31	33	-45.			
672-	CTRIA1	70	1204	56	32	34	-45.			
673-	CTRIA1	71	1104	33	57	55	-45.			
674-	CTRIA1	72	1204	34	58	56	-45.			
675-	CTRIA1	73	1110	63	39	41	-45.			
676-	CTRIA1	74	1216	64	40	42	-45.			
677-	CTRIA1	75	1109	41	65	63	-45.			
678-	CTRIA1	76	1216	42	66	64	-45.			
679-	CTRIA1	77	1108	65	41	43	-45.			
680-	CTRIA1	78	1212	66	42	44	-45.			
681-	CTRIA1	79	1107	43	67	65	-45.			
682-	CTRIA1	80	1212	44	68	66	-45.			
683-	CTRIA1	81	1107	67	43	45	-45.			
684-	CTRIA1	82	1210	68	44	46	-45.			
685-	CTRIA1	83	1106	45	69	67	-45.			
686-	CTRIA1	84	1210	46	70	68	-45.			
687-	CTRIA1	85	1106	69	45	47	-45.			
688-	CTRIA1	86	1209	70	46	48	-45.			
689-	CTRIA1	87	1105	47	71	69	-45.			
690-	CTRIA1	88	1208	48	72	70	-45.			
691-	CTRIA1	89	1105	71	47	49	-45.			
692-	CTRIA1	90	1207	72	48	50	-45.			
693-	CTRIA1	91	1104	49	73	71	-45.			
694-	CTRIA1	92	1206	50	74	72	-45.			
695-	CTRIA1	93	1104	73	49	51	-45.			
696-	CTRIA1	94	1206	74	50	52	-45.			
697-	CTRIA1	95	1104	51	75	73	-45.			
698-	CTRIA1	96	1205	52	76	74	-45.			
699-	CTRIA1	97	1104	75	51	53	-45.			
700-	CTRIA1	98	1205	76	52	54	-45.			

S O R T E D B U L K D A T A E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
701-	CTRIA1	99	1104	53	77	75	-45.			
702-	CTRIA1	100	1204	54	78	76	-45.			
703-	CTRIA1	101	1104	77	53	55	-45.			
704-	CTRIA1	102	1204	78	54	56	-45.			
705-	CTRIA1	103	1104	55	79	77	-45.			
706-	CTRIA1	104	1204	56	80	78	-45.			
707-	CTRIA1	105	1104	79	55	57	-45.			
708-	CTRIA1	106	1204	80	56	58	-45.			
709-	CTRIA1	107	1104	57	81	79	-45.			
710-	CTRIA1	108	1204	58	82	80	-45.			
711-	CTRIA1	109	1110	87	63	65	-45.			
712-	CTRIA1	110	1216	88	64	66	-45.			
713-	CTRIA1	111	1110	65	89	87	-45.			
714-	CTRIA1	112	1216	66	90	88	-45.			
715-	CTRIA1	113	1109	89	65	67	-45.			
716-	CTRIA1	114	1212	90	66	68	-45.			
717-	CTRIA1	115	1108	67	91	89	-45.			
718-	CTRIA1	116	1212	63	92	90	-45.			
719-	CTRIA1	117	1107	91	67	69	-45.			
720-	CTRIA1	118	1210	92	68	70	-45.			
721-	CTRIA1	119	1107	69	93	91	-45.			
722-	CTRIA1	120	1209	70	94	92	-45.			
723-	CTRIA1	121	1105	93	69	71	-45.			
724-	CTRIA1	122	1208	94	70	72	-45.			
725-	CTRIA1	123	1105	71	95	93	-45.			
726-	CTRIA1	124	1207	72	96	94	-45.			
727-	CTRIA1	125	1105	95	71	73	-45.			
728-	CTRIA1	126	1206	96	72	74	-45.			
729-	CTRIA1	127	1104	73	97	95	-45.			
730-	CTRIA1	128	1206	74	98	96	-45.			
731-	CTRIA1	129	1104	97	73	75	-45.			
732-	CTRIA1	130	1205	98	74	76	-45.			
733-	CTRIA1	131	1104	75	99	97	-45.			
734-	CTRIA1	132	1204	76	100	98	-45.			
735-	CTRIA1	133	1104	99	75	77	-45.			
736-	CTRIA1	134	1204	100	76	78	-45.			
737-	CTRIA1	135	1104	77	101	99	-45.			
738-	CTRIA1	136	1204	78	102	100	-45.			
739-	CTRIA1	137	1104	101	77	79	-45.			
740-	CTRIA1	138	1204	102	78	80	-45.			
741-	CTRIA1	139	1104	79	103	101	-45.			
742-	CTRIA1	140	1204	80	104	102	-45.			
743-	CTRIA1	141	1104	103	79	81	-45.			
744-	CTRIA1	142	1204	104	80	82	-45.			
745-	CTRIA1	143	1104	81	105	103	-45.			
746-	CTRIA1	144	1204	82	106	104	-45.			
747-	CTRIA1	145	145	111	87	89	-45.0			
748-	CTRIA1	146	145	112	88	90	-45.			
749-	CTRIA1	149	149	113	89	91	-45.			
750-	CTRIA1	150	149	114	90	92	-45.			

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
751-	CTRIA1	151	149	91	115	113	-45.			
752-	CTRIA1	152	149	92	116	114	-45.			
753-	CTRIA1	153	1107	115	91	93	-45.			
754-	CTRIA1	154	1209	116	92	94	-45.			
755-	CTRIA1	155	1106	93	117	115	-45.			
756-	CTRIA1	156	1208	94	118	116	-45.			
757-	CTRIA1	157	1105	117	93	95	-45.			
758-	CTRIA1	158	1207	118	94	96	-45.			
759-	CTRIA1	159	1105	95	119	117	-45.			
760-	CTRIA1	160	1206	96	120	118	-45.			
761-	CTRIA1	161	1104	119	95	97	-45.			
762-	CTRIA1	162	1205	120	96	98	-45.			
763-	CTRIA1	163	1104	97	121	119	-45.			
764-	CTRIA1	164	1205	98	122	120	-45.			
765-	CTRIA1	165	1104	121	97	99	-45.			
766-	CTRIA1	166	1204	122	98	100	-45.			
767-	CTRIA1	167	1104	99	123	121	-45.			
768-	CTRIA1	168	1204	100	124	122	-45.			
769-	CTRIA1	169	1104	123	99	101	-45.			
770-	CTRIA1	170	1204	124	100	102	-45.			
771-	CTRIA1	171	1104	101	125	123	-45.			
772-	CTRIA1	172	1204	102	126	124	-45.			
773-	CTRIA1	173	1104	125	101	103	-45.			
774-	CTRIA1	174	1204	126	102	104	-45.			
775-	CTRIA1	175	1104	103	127	125	-45.			
776-	CTRIA1	176	1204	104	128	126	-45.			
777-	CTRIA1	177	1104	127	103	105	-45.			
778-	CTRIA1	178	1204	128	104	106	-45.			
779-	CTRIA1	179	1104	105	129	127	-45.			
780-	CTRIA1	180	1204	106	130	128	-45.			
781-	CTRIA1	183	145	113	133	131	-45.			
782-	CTRIA1	184	145	114	134	132	-45.			
783-	CTRIA1	185	149	133	113	115	-45.			
784-	CTRIA1	186	149	134	114	116	-45.			
785-	CTRIA1	187	1106	115	135	133	-45.			
786-	CTRIA1	188	1209	116	136	134	-45.			
787-	CTRIA1	189	1105	135	115	117	-45.			
788-	CTRIA1	190	1208	136	116	118	-45.			
789-	CTRIA1	191	1105	117	137	135	-45.			
790-	CTRIA1	192	1206	118	138	136	-45.			
791-	CTRIA1	193	1104	137	117	119	-45.			
792-	CTRIA1	194	1206	138	118	120	-45.			
793-	CTRIA1	195	1104	119	139	137	-45.			
794-	CTRIA1	196	1205	120	140	138	-45.			
795-	CTRIA1	197	1104	139	119	121	-45.			
796-	CTRIA1	198	1205	140	120	122	-45.			
797-	CTRIA1	199	1104	121	141	139	-45.			
798-	CTRIA1	200	1204	122	142	140	-45.			
799-	CTRIA1	201	1104	141	121	123	-45.			
800-	CTRIA1	202	1204	142	122	124	-45.			

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
801-	CTRIA1	203	1104	123	143	141	-45.			
802-	CTRIA1	204	1204	124	144	142	-45.			
803-	CTRIA1	205	1104	143	123	125	-45.			
804-	CTRIA1	206	1204	144	124	126	-45.			
805-	CTRIA1	207	1104	125	145	143	-45.			
806-	CTRIA1	208	1204	126	146	144	-45.			
807-	CTRIA1	209	1104	145	125	127	-45.			
808-	CTRIA1	210	1204	146	126	128	-45.			
809-	CTRIA1	211	1104	127	147	145	-45.			
810-	CTRIA1	212	1204	128	148	146	-45.			
811-	CTRIA1	213	1104	147	127	129	-45.			
812-	CTRIA1	214	1204	148	128	130	-45.			
813-	CTRIA1	215	1104	129	149	147	-45.			
814-	CTRIA1	216	1204	130	150	148	-45.			
815-	CTRIA1	217	1105	151	131	133	-45.			
816-	CTRIA1	218	1207	152	132	134	-45.			
817-	CTRIA1	219	1105	133	153	151	-45.			
818-	CTRIA1	220	1207	134	154	152	-45.			
819-	CTRIA1	221	1105	153	133	135	-45.			
820-	CTRIA1	222	1207	154	134	136	-45.			
821-	CTRIA1	223	1105	135	155	153	-45.			
822-	CTRIA1	224	1207	136	156	154	-45.			
823-	CTRIA1	225	1105	155	135	137	-45.			
824-	CTRIA1	226	1207	156	136	138	-45.			
825-	CTRIA1	227	1104	137	157	155	-45.			
826-	CTRIA1	228	1206	138	158	156	-45.			
827-	CTRIA1	229	1104	157	137	139	-45.			
828-	CTRIA1	230	1206	158	138	140	-45.			
829-	CTRIA1	231	1104	139	159	157	-45.			
830-	CTRIA1	232	1205	140	160	158	-45.			
831-	CTRIA1	233	1104	159	139	141	-45.			
832-	CTRIA1	234	1205	160	140	142	-45.			
833-	CTRIA1	235	1104	141	161	159	-45.			
834-	CTRIA1	236	1204	142	162	160	-45.			
835-	CTRIA1	237	1104	161	141	143	-45.			
836-	CTRIA1	238	1204	162	142	144	-45.			
837-	CTRIA1	239	1104	143	163	161	-45.			
838-	CTRIA1	240	1204	144	164	162	-45.			
839-	CTRIA1	241	1104	163	143	145	-45.			
840-	CTRIA1	242	1204	164	144	146	-45.			
841-	CTRIA1	243	1104	145	165	163	-45.			
842-	CTRIA1	244	1204	146	166	164	-45.			
843-	CTRIA1	245	1104	165	145	147	-45.			
844-	CTRIA1	246	1204	166	146	148	-45.			
845-	CTRIA1	247	1104	147	167	165	-45.			
846-	CTRIA1	248	1204	148	168	166	-45.			
847-	CTRIA1	249	1104	167	147	149	-45.			
848-	CTRIA1	250	1204	168	148	150	-45.			
849-	CTRIA1	251	1104	149	169	167	-45.			
850-	CTRIA1	252	1204	150	170	168	-45.			

S O R T E D B U L K D A T A E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
851-	CTRIA1	253	1105	171	151	153	-45.			
852-	CTRIA1	254	1207	171	152	154	-45.			
853-	CTRIA1	255	1105	153	172	171	-45.			
854-	CTRIA1	256	1207	154	172	171	-45.			
855-	CTRIA1	257	1105	172	153	155	-45.			
856-	CTRIA1	258	1206	172	154	156	-45.			
857-	CTRIA1	259	1104	155	173	172	-45.			
858-	CTRIA1	260	1206	156	173	172	-45.			
859-	CTRIA1	261	1104	173	155	157	-45.			
860-	CTRIA1	262	1206	173	156	158	-45.			
861-	CTRIA1	263	1104	157	174	173	-45.			
862-	CTRIA1	264	1205	158	174	173	-45.			
863-	CTRIA1	265	1104	174	157	159	-45.			
864-	CTRIA1	266	1205	174	158	160	-45.			
865-	CTRIA1	267	1104	159	175	174	-45.			
866-	CTRIA1	268	1204	160	175	174	-45.			
867-	CTRIA1	269	1104	175	159	161	-45.			
868-	CTRIA1	270	1204	175	160	162	-45.			
869-	CTRIA1	271	1104	161	176	175	-45.			
870-	CTRIA1	272	1204	162	176	175	-45.			
871-	CTRIA1	273	1104	176	161	163	-45.			
872-	CTRIA1	274	1204	176	162	164	-45.			
873-	CTRIA1	275	1104	163	177	176	-45.			
874-	CTRIA1	276	1204	164	177	176	-45.			
875-	CTRIA1	277	1104	177	163	165	-45.			
876-	CTRIA1	278	1204	177	164	166	-45.			
877-	CTRIA1	279	1104	165	178	177	-45.			
878-	CTRIA1	280	1204	166	178	177	-45.			
879-	CTRIA1	281	1104	178	165	167	-45.			
880-	CTRIA1	282	1204	173	166	168	-45.			
881-	CTRIA1	283	1104	167	179	178	-45.			
882-	CTRIA1	284	1204	168	179	178	-45.			
883-	CTRIA1	285	1104	179	167	169	-45.			
884-	CTRIA1	286	1204	179	168	170	-45.			
885-	CTRIA1	287	1104	169	180	179	-45.			
886-	CTRIA1	288	1204	170	180	179	-45.			
887-	CTRIA1	289	289	89	181	111	-34.882			
888-	CTRIA1	290	289	90	182	112	-34.882			
889-	CTRIA1	291	145	89	113	181	-45.0			
890-	CTRIA1	292	145	90	114	182	-45.0			
891-	CTRIA1	293	145	131	181	113	-45.0			
892-	CTRIA1	294	145	132	182	114	-45.0			
893-	EIGR	5	GIV	0.0	250.	6	6			+EI5
894-	+EI5	MAX								
895-	FORCE	1	2	1	1.0	.0	.0	97.3		
896-	FORCE	1	3	1	1.0	0.0	0.0	147.8		
897-	FORCE	1	4	1	1.0	0.0	0.0	157.0		
898-	FORCE	1	5	1	1.0	0.0	0.0	135.7		
899-	FORCE	1	6	1	1.0	0.0	0.0	120.2		
900-	FORCE	1	7	1	1.0	0.0	0.0	114.0		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	1	2	3	4	5	6	7	8	9	10
901-	FORCE	1	8	1	1.0	0.0	0.0	109.5		
902-	FORCE	1	9	1	1.0	.0	.0	39.7		
903-	FORCE	1	17	1	1.0	.0	.0	143.2		
904-	FORCE	1	19	1	1.0	0.0	0.0	193.2		
905-	FORCE	1	21	1	1.0	0.0	0.0	224.4		
906-	FORCE	1	23	1	1.0	0.0	0.0	223.4		
907-	FORCE	1	25	1	1.0	0.0	0.0	182.1		
908-	FORCE	1	27	1	1.0	0.0	0.0	153.0		
909-	FORCE	1	29	1	1.0	0.0	0.0	147.7		
910-	FORCE	1	31	1	1.0	.0	.0	71.8		
911-	FORCE	1	33	1	1.0	0.0	0.0	40.0		
912-	FORCE	1	41	1	1.0	.0	.0	80.4		
913-	FORCE	1	43	1	1.0	0.0	0.0	95.4		
914-	FORCE	1	45	1	1.0	0.0	0.0	132.5		
915-	FORCE	1	47	1	1.0	0.0	0.0	134.5		
916-	FORCE	1	49	1	1.0	0.0	0.0	130.5		
917-	FORCE	1	51	1	1.0	0.0	0.0	141.8		
918-	FORCE	1	53	1	1.0	0.0	0.0	150.8		
919-	FORCE	1	55	1	1.0	0.0	0.0	161.8		
920-	FORCE	1	57	1	1.0	0.0	0.0	83.0		
921-	FORCE	1	65	1	1.0	.0	.0	92.6		
922-	FORCE	1	67	1	1.0	0.0	0.0	102.6		
923-	FORCE	1	69	1	1.0	0.0	0.0	110.0		
924-	FORCE	1	71	1	1.0	0.0	0.0	73.0		
925-	FORCE	1	73	1	1.0	.0	.0	51.4		
926-	FORCE	1	75	1	1.0	.0	.0	51.3		
927-	FORCE	1	77	1	1.0	.0	.0	21.2		
928-	FORCE	1	79	1	1.0	.0	.0	14.2		
929-	FORCE	1	81	1	1.0	0.0	0.0	40.0		
930-	FORCE	1	89	1	1.0	.0	.0	66.0		
931-	FORCE	1	91	1	1.0	0.0	0.0	71.0		
932-	FORCE	1	93	1	1.0	0.0	0.0	78.5		
933-	FORCE	1	95	1	1.0	0.0	0.0	47.5		
934-	FORCE	1	97	1	1.0	.0	.0	34.8		
935-	FORCE	1	99	1	1.0	.0	.0	37.7		
936-	FORCE	1	101	1	1.0	.0	.0	12.2		
937-	FORCE	1	103	1	1.0	.0	.0	31.9		
938-	FORCE	1	105	1	1.0	.0	.0	19.9		
939-	FORCE	1	113	1	1.0	.0	.0	44.9		
940-	FORCE	1	115	1	1.0	0.0	0.0	48.9		
941-	FORCE	1	117	1	1.0	0.0	0.0	49.2		
942-	FORCE	1	119	1	1.0	0.0	0.0	31.5		
943-	FORCE	1	121	1	1.0	.0	.0	22.5		
944-	FORCE	1	123	1	1.0	.0	.0	17.7		
945-	FORCE	1	125	1	1.0	.0	.0	11.3		
946-	FORCE	1	127	1	1.0	.0	.0	16.5		
947-	FORCE	1	129	1	1.0	.0	.0	7.5		
948-	FORCE	1	131	1	1.0	0.0	0.0	11.85		
949-	FORCE	1	133	1	1.0	0.0	0.0	15.64		
950-	FORCE	1	135	1	1.0	0.0	0.0	19.64		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
951-	FORCE	1	137	1	1.0	0.0	0.0	20.51		
952-	FORCE	1	139	1	1.0	0.0	0.0	20.22		
953-	FORCE	1	141	1	1.0	0.0	0.0	13.31		
954-	FORCE	1	143	1	1.0	0.0	0.0	9.24		
955-	FORCE	1	145	1	1.0	0.0	0.0	7.78		
956-	FORCE	1	147	1	1.0	0.0	0.0	13.60		
957-	FORCE	1	149	1	1.0	0.0	0.0	11.27		
958-	FORCE	1	151	1	1.0	0.0	0.0	9.45		
959-	FORCE	1	153	1	1.0	0.0	0.0	5.86		
960-	FORCE	1	155	1	1.0	0.0	0.0	7.36		
961-	FORCE	1	157	1	1.0	0.0	0.0	7.69		
962-	FORCE	1	159	1	1.0	0.0	0.0	7.58		
963-	FORCE	1	161	1	1.0	0.0	0.0	4.99		
964-	FORCE	1	163	1	1.0	0.0	0.0	3.46		
965-	FORCE	1	165	1	1.0	0.0	0.0	2.92		
966-	FORCE	1	167	1	1.0	0.0	0.0	5.10		
967-	FORCE	1	169	1	1.0	0.0	0.0	4.23		
968-	FORCE	1	171	1	1.0	0.0	0.0	12.7		
969-	FORCE	1	172	1	1.0	.0	.0	11.6		
970-	FORCE	1	173	1	1.0	.0	.0	11.6		
971-	FORCE	1	174	1	1.0	.0	.0	7.30		
972-	FORCE	1	175	1	1.0	.0	.0	2.40		
973-	FORCE	1	176	1	1.0	.0	.0	2.00		
974-	FORCE	1	177	1	1.0	.0	.0	.60		
975-	FORCE	2	2	1	1.0	.0	.0	97.8		
976-	FORCE	2	3	1	1.0	0.0	0.0	147.8		
977-	FORCE	2	4	1	1.0	0.0	0.0	157.0		
978-	FORCE	2	5	1	1.0	0.0	0.0	135.7		
979-	FORCE	2	6	1	1.0	0.0	0.0	120.2		
980-	FORCE	2	7	1	1.0	0.0	0.0	114.0		
981-	FORCE	2	8	1	1.0	0.0	0.0	109.5		
982-	FORCE	2	9	1	1.0	.0	.0	39.7		
983-	FORCE	2	18	1	1.0	.0	.0	143.2		
984-	FORCE	2	20	1	1.0	0.0	0.0	193.2		
985-	FORCE	2	22	1	1.0	0.0	0.0	224.4		
986-	FORCE	2	24	1	1.0	0.0	0.0	223.4		
987-	FORCE	2	26	1	1.0	0.0	0.0	182.1		
988-	FORCE	2	28	1	1.0	0.0	0.0	153.0		
989-	FORCE	2	30	1	1.0	0.0	0.0	147.7		
990-	FORCE	2	32	1	1.0	.0	.0	71.8		
991-	FORCE	2	34	1	1.0	0.0	0.0	40.0		
992-	FORCE	2	42	1	1.0	.0	.0	80.4		
993-	FORCE	2	44	1	1.0	0.0	0.0	95.4		
994-	FORCE	2	46	1	1.0	0.0	0.0	132.5		
995-	FORCE	2	48	1	1.0	0.0	0.0	134.5		
996-	FORCE	2	50	1	1.0	0.0	0.0	130.5		
997-	FORCE	2	52	1	1.0	0.0	0.0	141.8		
998-	FORCE	2	54	1	1.0	0.0	0.0	150.8		
999-	FORCE	2	56	1	1.0	0.0	0.0	161.8		
1000-	FORCE	2	58	1	1.0	0.0	0.0	83.0		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
1001-	FORCE	2	65	1	1.0	.0	.0	92.6		
1002-	FORCE	2	68	1	1.0	0.0	0.0	102.6		
1003-	FORCE	2	70	1	1.0	0.0	0.0	110.0		
1004-	FORCE	2	72	1	1.0	0.0	0.0	73.0		
1005-	FORCE	2	74	1	1.0	.0	.0	51.4		
1006-	FORCE	2	76	1	1.0	.0	.0	51.3		
1007-	FORCE	2	78	1	1.0	.0	.0	21.2		
1008-	FORCE	2	80	1	1.0	.0	.0	14.2		
1009-	FORCE	2	82	1	1.0	0.0	0.0	40.0		
1010-	FORCE	2	90	1	1.0	.0	.0	66.0		
1011-	FORCE	2	92	1	1.0	0.0	0.0	71.0		
1012-	FORCE	2	94	1	1.0	0.0	0.0	78.5		
1013-	FORCE	2	96	1	1.0	0.0	0.0	47.5		
1014-	FORCE	2	98	1	1.0	.0	.0	34.3		
1015-	FORCE	2	100	1	1.0	.0	.0	37.7		
1016-	FORCE	2	102	1	1.0	.0	.0	12.2		
1017-	FORCE	2	104	1	1.0	.0	.0	31.9		
1018-	FORCE	2	106	1	1.0	.0	.0	19.9		
1019-	FORCE	2	114	1	1.0	.0	.0	44.9		
1020-	FORCE	2	116	1	1.0	0.0	0.0	48.9		
1021-	FORCE	2	118	1	1.0	0.0	0.0	49.2		
1022-	FORCE	2	120	1	1.0	0.0	0.0	31.5		
1023-	FORCE	2	122	1	1.0	.0	.0	22.5		
1024-	FORCE	2	124	1	1.0	.0	.0	17.7		
1025-	FORCE	2	126	1	1.0	.0	.0	11.3		
1026-	FORCE	2	128	1	1.0	.0	.0	16.5		
1027-	FORCE	2	130	1	1.0	.0	.0	7.5		
1028-	FORCE	2	132	1	1.0	0.0	0.0	11.85		
1029-	FORCE	2	134	1	1.0	0.0	0.0	15.64		
1030-	FORCE	2	136	1	1.0	0.0	0.0	19.64		
1031-	FORCE	2	138	1	1.0	0.0	0.0	20.51		
1032-	FORCE	2	140	1	1.0	0.0	0.0	20.22		
1033-	FORCE	2	142	1	1.0	0.0	0.0	13.31		
1034-	FORCE	2	144	1	1.0	0.0	0.0	9.24		
1035-	FORCE	2	146	1	1.0	0.0	0.0	7.78		
1036-	FORCE	2	148	1	1.0	0.0	0.0	13.60		
1037-	FORCE	2	150	1	1.0	0.0	0.0	11.27		
1038-	FORCE	2	152	1	1.0	0.0	0.0	9.45		
1039-	FORCE	2	154	1	1.0	0.0	0.0	5.86		
1040-	FORCE	2	156	1	1.0	0.0	0.0	7.36		
1041-	FORCE	2	158	1	1.0	0.0	0.0	7.69		
1042-	FORCE	2	160	1	1.0	0.0	0.0	7.58		
1043-	FORCE	2	162	1	1.0	0.0	0.0	4.99		
1044-	FORCE	2	164	1	1.0	0.0	0.0	3.46		
1045-	FORCE	2	166	1	1.0	0.0	0.0	2.92		
1046-	FORCE	2	168	1	1.0	0.0	0.0	5.10		
1047-	FORCE	2	170	1	1.0	0.0	0.0	4.23		
1048-	FORCE	2	171	1	1.0	0.0	0.0	12.7		
1049-	FORCE	2	172	1	1.0	.0	.0	11.6		
1050-	FORCE	2	173	1	1.0	.0	.0	11.6		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
1051-	FORCE	2	174	1	1.0	.0	.0	7.30		
1052-	FORCE	2	175	1	1.0	.0	.0	2.40		
1053-	FORCE	2	176	1	1.0	.0	.0	2.00		
1054-	FORCE	2	177	1	1.0	.0	.0	.60		
1055-	GRDSET		1				0	0		
1056-	GRID	1	0	11.250	14.929	.000	0	0		
1057-	GRID	2	0	14.000	18.579	.000	0	0		
1058-	GRID	3	0	19.000	25.214	.000	0	0		
1059-	GRID	4	0	24.000	31.849	.000	0	0		
1060-	GRID	5	0	29.000	38.484	.000	0	0		
1061-	GRID	6	0	34.000	45.120	.000	0	0		
1062-	GRID	7	0	39.000	51.755	.000	0	0		
1063-	GRID	8	0	44.000	58.390	.000	0	0		
1064-	GRID	9	0	49.000	65.025	.000	0	0		
1065-	GRID	10	0	53.600	71.130	.000	0	0		
1066-	GRID	11	0	.000	19.865	-.764	0	0		
1067-	GRID	12	0	.000	19.865	.780	0	0		
1068-	GRID	13	0	4.500	19.865	-.751	0	0		
1069-	GRID	14	0	4.500	19.865	.766	0	0		
1070-	GRID	15	0	9.000	19.490	-.710	0	0		
1071-	GRID	16	0	9.000	19.490	.726	0	0		
1072-	GRID	17	0	14.000	25.567	-.671	0	0		
1073-	GRID	18	0	14.000	25.567	.687	0	0		
1074-	GRID	19	0	19.000	31.644	-.611	0	0		
1075-	GRID	20	0	19.000	31.644	.632	0	0		
1076-	GRID	21	0	24.000	37.720	-.567	0	0		
1077-	GRID	22	0	24.000	37.720	.583	0	0		
1078-	GRID	23	0	29.000	43.797	-.523	0	0		
1079-	GRID	24	0	29.000	43.797	.534	0	0		
1080-	GRID	25	0	34.000	49.874	-.468	0	0		
1081-	GRID	26	0	34.000	49.874	.479	0	0		
1082-	GRID	27	0	39.000	55.951	-.419	0	0		
1083-	GRID	28	0	39.000	55.951	.424	0	0		
1084-	GRID	29	0	44.000	62.028	-.369	0	0		
1085-	GRID	30	0	44.000	62.028	.369	0	0		
1086-	GRID	31	0	49.000	68.104	-.310	0	0		
1087-	GRID	32	0	49.000	68.104	.310	0	0		
1088-	GRID	33	0	53.600	73.695	-.254	0	0		
1089-	GRID	34	0	53.600	73.695	.254	0	0		
1090-	GRID	35	0	.000	27.830	-.764	0	0		
1091-	GRID	36	0	.000	27.830	.780	0	0		
1092-	GRID	37	0	4.500	27.830	-.751	0	0		
1093-	GRID	38	0	4.500	27.830	.766	0	0		
1094-	GRID	39	0	9.000	27.830	-.710	0	0		
1095-	GRID	40	0	9.000	27.830	.726	0	0		
1096-	GRID	41	0	14.000	33.290	-.671	0	0		
1097-	GRID	42	0	14.000	33.290	.687	0	0		
1098-	GRID	43	0	19.000	38.749	-.611	0	0		
1099-	GRID	44	0	19.000	38.749	.632	0	0		
1100-	GRID	45	0	24.000	44.209	-.567	0	0		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
1101-	GRID	45	0	24.000	44.209	.583	0	0		
1102-	GRID	47	0	29.000	49.669	-.523	0	0		
1103-	GRID	48	0	29.000	49.669	.534	0	0		
1104-	GRID	49	0	34.000	55.128	-.468	0	0		
1105-	GRID	50	0	34.000	55.128	.479	0	0		
1106-	GRID	51	0	39.000	60.588	-.419	0	0		
1107-	GRID	52	0	39.000	60.588	.424	0	0		
1108-	GRID	53	0	44.000	66.048	-.369	0	0		
1109-	GRID	54	0	44.000	66.048	.369	0	0		
1110-	GRID	55	0	49.000	71.507	-.310	0	0		
1111-	GRID	56	0	49.000	71.507	.310	0	0		
1112-	GRID	57	0	53.600	76.530	-.254	0	0		
1113-	GRID	58	0	53.600	76.530	.254	0	0		
1114-	GRID	59	0	.000	36.110	-.764	0	0		
1115-	GRID	60	0	.000	36.110	.780	0	0		
1116-	GRID	61	0	4.500	36.110	-.751	0	0		
1117-	GRID	62	0	4.500	36.110	.766	0	0		
1118-	GRID	63	0	9.000	36.110	-.710	0	0		
1119-	GRID	64	0	9.000	36.110	.726	0	0		
1120-	GRID	65	0	14.000	40.957	-.671	0	0		
1121-	GRID	66	0	14.000	40.957	.687	0	0		
1122-	GRID	67	0	19.000	45.304	-.611	0	0		
1123-	GRID	68	0	19.000	45.304	.632	0	0		
1124-	GRID	69	0	24.000	50.651	-.567	0	0		
1125-	GRID	70	0	24.000	50.651	.583	0	0		
1126-	GRID	71	0	29.000	55.498	-.523	0	0		
1127-	GRID	72	0	29.000	55.498	.534	0	0		
1128-	GRID	73	0	34.000	60.345	-.468	0	0		
1129-	GRID	74	0	34.000	60.345	.479	0	0		
1130-	GRID	75	0	39.000	65.192	-.419	0	0		
1131-	GRID	76	0	39.000	65.192	.424	0	0		
1132-	GRID	77	0	44.000	70.039	-.369	0	0		
1133-	GRID	78	0	44.000	70.039	.369	0	0		
1134-	GRID	79	0	49.000	74.886	-.310	0	0		
1135-	GRID	80	0	49.000	74.886	.310	0	0		
1136-	GRID	81	0	53.600	79.345	-.254	0	0		
1137-	GRID	82	0	53.600	79.345	.254	0	0		
1138-	GRID	83	0	.000	44.390	-.764	0	0		
1139-	GRID	84	0	.000	44.390	.780	0	0		
1140-	GRID	85	0	4.500	44.390	-.751	0	0		
1141-	GRID	86	0	4.500	44.390	.766	0	0		
1142-	GRID	87	0	9.000	44.390	-.710	0	0		
1143-	GRID	88	0	9.000	44.390	.726	0	0		
1144-	GRID	89	0	14.000	48.624	-.677	0	0		
1145-	GRID	90	0	14.000	48.624	.687	0	0		
1146-	GRID	91	0	19.000	52.359	-.617	0	0		
1147-	GRID	92	0	19.000	52.359	.632	0	0		
1148-	GRID	93	0	24.000	57.093	-.567	0	0		
1149-	GRID	94	0	24.000	57.093	.583	0	0		
1150-	GRID	95	0	29.000	61.327	-.523	0	0		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	. 1 ..	2 ..	3 ..	4 ..	5 ..	6 ..	7 ..	8 ..	9 ..	10 .
1151-	GRID	96	0	29.000	61.327	.534	0	0		
1152-	GRID	97	0	34.000	65.562	-.468	0	0		
1153-	GRID	98	0	34.000	65.562	.479	0	0		
1154-	GRID	99	0	39.000	69.796	-.419	0	0		
1155-	GRID	100	0	39.000	69.796	.424	0	0		
1156-	GRID	101	0	44.000	74.030	-.369	0	0		
1157-	GRID	102	0	44.000	74.030	.369	0	0		
1158-	GRID	103	0	49.000	78.264	-.310	0	0		
1159-	GRID	104	0	49.000	78.264	.310	0	0		
1160-	GRID	105	0	53.600	82.160	-.254	0	0		
1161-	GRID	106	0	53.600	82.160	.254	0	0		
1162-	GRID	107	0	.000	50.925	-.764	0	0		
1163-	GRID	108	0	.000	50.925	.780	0	0		
1164-	GRID	109	0	4.500	50.925	-.751	0	0		
1165-	GRID	110	0	4.500	50.925	.766	0	0		
1166-	GRID	111	0	9.000	51.300	-.710	0	0		
1167-	GRID	112	0	9.000	51.300	.726	0	0		
1168-	GRID	113	0	14.000	54.007	-.677	0	0		
1169-	GRID	114	0	14.000	54.007	.667	0	0		
1170-	GRID	115	0	19.000	57.811	-.622	0	0		
1171-	GRID	116	0	19.000	57.811	.638	0	0		
1172-	GRID	117	0	24.000	61.615	-.572	0	0		
1173-	GRID	118	0	24.000	61.615	.588	0	0		
1174-	GRID	119	0	29.000	65.420	-.528	0	0		
1175-	GRID	120	0	29.000	65.420	.539	0	0		
1176-	GRID	121	0	34.000	69.224	-.479	0	0		
1177-	GRID	122	0	34.000	69.224	.484	0	0		
1178-	GRID	123	0	39.000	73.028	-.429	0	0		
1179-	GRID	124	0	39.000	73.028	.429	0	0		
1180-	GRID	125	0	44.000	76.832	-.369	0	0		
1181-	GRID	126	0	44.000	76.832	.369	0	0		
1182-	GRID	127	0	49.000	80.636	-.310	0	0		
1183-	GRID	128	0	49.000	80.636	.310	0	0		
1184-	GRID	129	0	53.600	84.136	-.254	0	0		
1185-	GRID	130	0	53.600	84.136	.254	0	0		
1186-	GRID	131	0	11.250	57.157	-.731	0	0		
1187-	GRID	132	0	11.250	55.157	.731	0	0		
1188-	GRID	133	0	15.000	59.709	-.659	0	0		
1189-	GRID	134	0	15.000	59.709	.648	0	0		
1190-	GRID	135	0	19.000	62.431	-.632	0	0		
1191-	GRID	136	0	19.000	62.431	.648	0	0		
1192-	GRID	137	0	24.000	65.834	-.588	0	0		
1193-	GRID	138	0	24.000	65.834	.599	0	0		
1194-	GRID	139	0	29.000	69.237	-.539	0	0		
1195-	GRID	140	0	29.000	69.237	.544	0	0		
1196-	GRID	141	0	34.000	72.640	-.479	0	0		
1197-	GRID	142	0	34.000	72.640	.484	0	0		
1198-	GRID	143	0	39.000	76.043	-.429	0	0		
1199-	GRID	144	0	39.000	76.043	.429	0	0		
1200-	GRID	145	0	44.000	79.446	-.369	0	0		

S O R T E D   B U L K   D A T A   E C H O

CARD COUNT	1	2	3	4	5	6	7	8	9	10
1201-	GRID	145	0	44.000	79.445	.369	0	0		
1202-	GRID	147	0	49.000	82.849	-.310	0	0		
1203-	GRID	148	0	49.000	82.349	.310	0	0		
1204-	GRID	149	0	53.600	85.980	-.254	0	0		
1205-	GRID	150	0	53.600	85.960	.254	0	0		
1206-	GRID	151	0	11.250	62.787	-.423	0	0		
1207-	GRID	152	0	11.250	62.787	.433	0	0		
1208-	GRID	153	0	15.000	65.016	-.411	0	0		
1209-	GRID	154	0	15.000	65.016	.417	0	0		
1210-	GRID	155	0	19.000	67.394	-.383	0	0		
1211-	GRID	156	0	19.000	67.394	.388	0	0		
1212-	GRID	157	0	24.000	70.365	-.357	0	0		
1213-	GRID	158	0	24.000	70.365	.357	0	0		
1214-	GRID	159	0	29.000	73.337	-.321	0	0		
1215-	GRID	160	0	29.000	73.337	.321	0	0		
1216-	GRID	161	0	34.000	76.309	-.285	0	0		
1217-	GRID	162	0	34.000	76.309	.285	0	0		
1218-	GRID	163	0	39.000	79.281	-.249	0	0		
1219-	GRID	164	0	39.000	79.281	.249	0	0		
1220-	GRID	165	0	44.000	82.253	-.213	0	0		
1221-	GRID	166	0	44.000	82.253	.213	0	0		
1222-	GRID	167	0	49.000	85.225	-.177	0	0		
1223-	GRID	168	0	49.000	85.225	.177	0	0		
1224-	GRID	169	0	53.600	87.960	-.144	0	0		
1225-	GRID	170	0	53.600	87.960	.144	0	0		
1226-	GRID	171	0	11.250	71.232	.000	0	0		
1227-	GRID	172	0	15.000	72.977	.000	0	0		
1228-	GRID	173	0	19.000	74.337	.000	0	0		
1229-	GRID	174	0	24.000	77.163	.000	0	0		
1230-	GRID	175	0	29.000	79.488	.000	0	0		
1231-	GRID	176	0	34.000	81.314	.000	0	0		
1232-	GRID	177	0	39.000	84.139	.000	0	0		
1233-	GRID	178	0	44.000	86.465	.000	0	0		
1234-	GRID	179	0	49.000	88.790	.000	0	0		
1235-	GRID	180	0	53.600	90.930	.000	0	0		
1236-	GRID	181	0	11.25	51.915	-0.695	0	0		
1237-	GRID	182	0	11.25	51.915	.708	0	0		
1238-	LOAD	10	1.25	1.0	2					
1239-	LOAD	20	-0.5	1.	1					
1240-	MAT1	10		8.1+6						
1241-	MAT1	11	29.+6	11.+6		.277	6.1-6	75.		
1242-	MAT1	13	29.+6	11.+6		0.0	6.1-6	75.		
1243-	MAT2	104	23.996+6	7.7963+6	.+6	23.996+6	.+6	11.064+6	.095	
1244-	MAT2	105	25.779+6	7.2035+6	.+6	23.399+6	.+6	10.471+6	.095	
1245-	MAT2	106	26.968+6	6.8083+6	.+6	23.001+6	.+6	10.076+6	.095	
1246-	MAT2	107	26.544+6	5.9494+6	-.4251+6	23.143+6	-.4251+6	10.217+6	.095	
1247-	MAT2	108	26.225+6	7.0553+6	.+6	23.250+6	.+6	10.323+6	.095	
1248-	MAT2	109	26.968+6	6.8083+6	.+6	23.001+6	.+6	10.076+6	.095	
1249-	MAT2	110	26.671+6	6.9071+6	-.2975+6	23.100+6	-.2975+6	10.175+6	.095	
1250-	MAT2	113	26.050+6	6.2002+6	.+6	25.135+6	.+6	9.468+6	.095	

S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT     .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
1251-     MAT2    154     23.996+67.7963+6-2.232+623.996+6-2.232+611.064+6.095
1252-     MAT2    155     24.068+67.7725+6-1.714+623.972+6-1.714+611.040+6.095
1253-     MAT2    156     24.327+67.6365+6-1.322+623.886+6-1.322+610.954+6.095
1254-     MAT2    157     24.672+67.5715+6-1.050+623.770+6-1.050+610.839+6.095
1255-     MAT2    158     24.971+67.4721+6-.8369+623.670+6-.8369+610.740+6.095
1256-     MAT2    159     25.207+67.3935+6-.6857+623.591+6-.6857+610.662+6.095
1257-     MAT2    160     25.397+67.3339+6-.7497+623.530+6-.7497+610.602+6.095
1258-     MAT2    163     27.038+65.6822+6.+6     25.133+6.+6     8.950+6 .095
1259-     MAT2    210     27.562+66.6107+6.+6     22.802+6.+6     9.878+6 .095
1260-     MAT2    211     27.238+66.7124+6-.2705+622.910+6-.2705+69.986+6 .095
1261-     MAT2    212     26.968+66.8083+6-.4959+623.001+6-.4959+610.076+6.095
1262-     MAT2    216     26.222+66.3143+6.+6     24.735+6.+6     9.582+6 .095
1263-     MAT2    260     25.423+67.3221+6-.5713+623.518+6-.5713+610.590+6.095
1264-     MAT2    261     25.631+67.2529+6-.4851+623.449+6-.4851+610.521+6.095
1265-     MAT2    262     25.812+67.1925+6-.4270+623.388+6-.4270+610.460+6.095
1266-     MAT2    266     26.430+65.8627+6-.1046+625.430+6-.1046+69.131+6 .095
1267-     MAT2    239     11.67+6 6.2002+6.0      25.135+5.0      9.468+6 .095
1268-     PARAM   COUPMASS1
1269-     PARAM   GRDPNT  63
1270-     PARAM   WTMASS  .25880-2
1271-     PBAR    501     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0             +PAR 501
1272-     +PAR 501 -.6892  .7500   .0000   .7500   -.6959  .0000   -.6825  .0000+P2R 501
1273-     +P2R 501 .560026 .359127 0.
1274-     PBAR    502     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0             +PAR 502
1275-     +PAR 502 .6892   .7500   .0000   .7500   .6959   .0000   .6825   .0000+P2R 502
1276-     +P2R 502 .560026 .359127 0.
1277-     PBAR    503     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0             +PAR 503
1278-     +PAR 503 -.6622  .7500   .0000   .7500   -.6825  .0000   -.6420  .0000+P2R 503
1279-     +P2R 503 .651013 .368648 0.
1280-     PBAR    504     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0             +PAR 504
1281-     +PAR 504 .6622   .7500   .0000   .7500   .6825   .0000   .6420   .0000+P2R 504
1282-     +P2R 504 .651013 .368648 0.
1283-     PBAR    505     11      .8372-1 2.5344-24.3227-2.4465-4 0.0             +PAR 505
1284-     +PAR 505 -.6330  1.5000  .0000   1.5000  -.6420  .0000   -.6241  .0000+P2R 505
1285-     +P2R 505 .302448 .716663 0.
1286-     PBAR    506     11      .8372-1 2.5344-24.3227-2.4465-4 0.0             +PAR 506
1287-     +PAR 506 .6330   1.5000  .0000   1.5000  .6420   .0000   .6241   .0000+P2R 506
1288-     +P2R 506 .302443 .716663 0.
1289-     PBAR    507     11      .8237-1 2.2530-24.3227-2.4393-4 0.0             +PAR 507
1290-     +PAR 507 -.5993  1.5000  .0000   1.5000  -.6241  .0000   -.5746  .0000+P2R 507
1291-     +P2R 507 .291037 .728386 0.
1292-     PBAR    508     11      .8237-1 2.2530-24.3227-2.4393-4 0.0             +PAR 508
1293-     +PAR 508 .5993   1.5000  .0000   1.5000  .6241   .0000   .5746   .0000+P2R 508
1294-     +P2R 508 .291037 .728386 0.
1295-     PBAR    509     11      .8061-1 1.9045-24.3227-2.4299-4 0.0             +PAR 509
1296-     +PAR 509 -.5552  1.5000  .0000   1.5000  -.5746  .0000   -.5357  .0000+P2R 509
1297-     +P2R 509 .275492 .744353 0.
1298-     PBAR    510     11      .8061-1 1.9045-24.3227-2.4299-4 0.0             +PAR 510
1299-     +PAR 510 .5552   1.5000  .0000   1.5000  .5746   .0000   .5357   .0000+P2R 510
1300-     +P2R 510 .275492 .744358 0.
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                                     S O R T E D   B U L K   D A T A   E C H O
 CARD
 COUNT           .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
 1301-          PBAR    511     11      .7905-1 1.6252-24.3227-2.4216-4 0.0                 +PAR 511
 1302-          +PAR 511  -.5162  1.5000  .0000  1.5000  -.5357   .0000   -.4968   .0000+P2R 511
 1303-          +P2R 511 .261217 .759023  0.
 1304-          PBAR    512     11      .7905-1 1.6252-24.3227-2.4216-4 0.0                 +PAR 512
 1305-          +PAR 512   .5162  1.5000  .0000  1.5000   .5357   .0000    .4968   .0000+P2R 512
 1306-          +P2R 512 .261217 .759023  0.
 1307-          PBAR    513     11      .7728-1 1.3391-24.3226-2.4122-4 0.0                 +PAR 513
 1308-          +PAR 513  -.4720  1.5000  .0000  1.5000  -.4968   .0000   -.4473   .0000+P2R 513
 1309-          +P2R 513 .244321 .776383  0.
 1310-          PBAR    514     11      .7728-1 1.3391-24.3226-2.4122-4 0.0                 +PAR 514
 1311-          +PAR 514   .4720  1.5000  .0000  1.5000   .4968   .0000    .4473   .0000+P2R 514
 1312-          +P2R 514 .244321 .776383  0.
 1313-          PBAR    515     11      .7530-1 1.0526-24.3226-2.4016-4 0.0                 +PAR 515
 1314-          +PAR 515  -.4226  1.5000  .0000  1.5000  -.4473   .0000   -.3979   .0000+P2R 515
 1315-          +P2R 515 .224477 .796770  0.
 1316-          PBAR    516     11      .7530-1 1.0526-24.3226-2.4016-4 0.0                 +PAR 516
 1317-          +PAR 516   .4226  1.5000  .0000  1.5000   .4473   .0000    .3979   .0000+P2R 516
 1318-          +P2R 516 .224477 .796770  0.
 1319-          PBAR    517     11      .7333-1 .8029-2 4.3226-2.3911-4 0.0                 +PAR 517
 1320-          +PAR 517  -.3732  1.5000  .0000  1.5000  -.3979   .0000   -.3484   .0000+P2R 517
 1321-          +P2R 517 .203563 .818258  0.
 1322-          PBAR    518     11      .7333-1 .8029-2 4.3226-2.3911-4 0.0                 +PAR 518
 1323-          +PAR 518   .3732  1.5000  .0000  1.5000   .3979   .0000    .3484   .0000+P2R 518
 1324-          +P2R 518 .203563 .818258  0.
 1325-          PBAR    519     11      .7114-1 .5705-2 4.3225-2.3794-4 0.0                 +PAR 519
 1326-          +PAR 519  -.3185  1.5000  .0000  1.5000  -.3484   .0000   -.2885   .0000+P2R 519
 1327-          +P2R 519 .179073 .843418  0.
 1328-          PBAR    520     11      .7114-1 .5705-2 4.3225-2.3794-4 0.0                 +PAR 520
 1329-          +PAR 520   .3185  1.5000  .0000  1.5000   .3484   .0000    .2885   .0000+P2R 520
 1330-          +P2R 520 .179073 .843418  0.
 1331-          PBAR    521     11      .6884-1 .3687-2 4.3225-2.3671-4 0.0                 +PAR 521
 1332-          +PAR 521  -.2609  1.5000  .0000  1.5000  -.2885   .0000   -.2334   .0000+P2R 521
 1333-          +P2R 521 .151625 .871618  0.
 1334-          PBAR    522     11      .6884-1 .3687-2 4.3225-2.3671-4 0.0                 +PAR 522
 1335-          +PAR 522   .2609  1.5000  .0000  1.5000   .2885   .0000    .2334   .0000+P2R 522
 1336-          +P2R 522 .151625 .871618  0.
 1337-          PBAR    523     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0                 +PAR 523
 1338-          +PAR 523  -.6892   .7500  .0000   .7500  -.6959   .0000   -.6825   .0000+P2R 523
 1339-          +P2R 523 .660026 .359127  0.
 1340-          PBAR    524     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0                 +PAR 524
 1341-          +PAR 524   .6892   .7500  .0000   .7500   .6959   .0000    .6825   .0000+P2R 524
 1342-          +P2R 524 .660026 .359127  0.
 1343-          PBAR    525     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0                 +PAR 525
 1344-          +PAR 525  -.6622   .7500  .0000   .7500  -.6825   .0000   -.6420   .0000+P2R 525
 1345-          +P2R 525 .651013 .368648  0.
 1346-          PBAR    526     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0                 +PAR 526
 1347-          +PAR 526   .6622   .7500  .0000   .7500   .6825   .0000    .6420   .0000+P2R 526
 1348-          +P2R 526 .651013 .368648  0.
 1349-          PBAR    527     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0                 +PAR 527
 1350-          +PAR 527  -.6330   .7500  .0000   .7500  -.6420   .0000   -.6241   .0000+P2R 527
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B/AL WING STATIC ANALYSIS, EXP. PROP.                          NOVEMBER   2, 1978   NASTRAN 12/16/77    PAGE    30
SKIN CHANGES OF 10-31-78 + NEW G11 OF ELEM 289+290(11-2-78)

                              S O R T E D   B U L K   D A T A   E C H O
 CARD
 COUNT         .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
 1351-         +P2R 527 .467863 .554310  0.
 1352-         PBAR    528     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0                +PAR 528
 1353-         +PAR 528   .6330   .7500   .0000   .7500   .6420   .0000   .6241   .0000+P2R 528
 1354-         +P2R 528 .467863 .554310  0.
 1355-         PBAR    529     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0                +PAR 529
 1356-         +PAR 529  -.5993   .7500   .0000   .7500  -.6241   .0000  -.5746   .0000+P2R 529
 1357-         +P2R 529 .454276 .568463  0.
 1358-         PBAR    530     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0                +PAR 530
 1359-         +PAR 530   .5993   .7500   .0000   .7500   .6241   .0000   .5746   .0000+P2R 530
 1360-         +P2R 530 .454276 .568463  0.
 1361-         PBAR    531     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0                +PAR 531
 1362-         +PAR 531  -.5552   .7500   .0000   .7500  -.5746   .0000  -.5357   .0000+P2R 531
 1363-         +P2R 531 .435365 .588161  0.
 1364-         PBAR    532     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0                +PAR 532
 1365-         +PAR 532   .5552   .7500   .0000   .7500   .5746   .0000   .5357   .0000+P2R 532
 1366-         +P2R 532 .435365 .588161  0.
 1367-         PBAR    533     11      .3709-1 .6818-2 .3972-2 .1113-4 0.0                +PAR 533
 1368-         +PAR 533  -.5162   .7500   .0000   .7500  -.5357   .0000  -.4968   .0000+P2R 533
 1369-         +P2R 533 .417581 .606686  0.
 1370-         PBAR    534     11      .3709-1 .6818-2 .3972-2 .1113-4 0.0                +PAR 534
 1371-         +PAR 534   .5162   .7500   .0000   .7500   .5357   .0000   .4968   .0000+P2R 534
 1372-         +P2R 534 .417581 .606686  0.
 1373-         PBAR    535     11      .3576-1 .5587-2 .3972-2 .1073-4 0.0                +PAR 535
 1374-         +PAR 535  -.4720   .7500   .0000   .7500  -.4968   .0000  -.4473   .0000+P2R 535
 1375-         +P2R 535 .395992 .629175  0.
 1376-         PBAR    536     11      .3576-1 .5587-2 .3972-2 .1073-4 0.0                +PAR 536
 1377-         +PAR 536   .4720   .7500   .0000   .7500   .4968   .0000   .4473   .0000+P2R 536
 1378-         +P2R 536 .395992 .629175  0.
 1379-         PBAR    537     11      .3428-1 .4366-2 .3972-2 .1028-4 0.0                +PAR 537
 1380-         +PAR 537  -.4226   .7500   .0000   .7500  -.4473   .0000  -.3979   .0000+P2R 537
 1381-         +P2R 537 .369858 .656398  0.
 1382-         PBAR    538     11      .3428-1 .4366-2 .3972-2 .1028-4 0.0                +PAR 538
 1383-         +PAR 538   .4226   .7500   .0000   .7500   .4473   .0000   .3979   .0000+P2R 538
 1384-         +P2R 538 .369858 .656398  0.
 1385-         PBAR    539     11      .3279-1 .3312-2 .3971-2 .0984-4 0.0                +PAR 539
 1386-         +PAR 539  -.3732   .7500   .0000   .7500  -.3979   .0000  -.3484   .0000+P2R 539
 1387-         +P2R 539 .341361 .686082  0.
 1388-         PBAR    540     11      .3279-1 .3312-2 .3971-2 .0984-4 0.0                +PAR 540
 1389-         +PAR 540   .3732   .7500   .0000   .7500   .3979   .0000   .3484   .0000+P2R 540
 1390-         +P2R 540 .341361 .686082  0.
 1391-         PBAR    541     11      .3115-1 .2342-2 .3971-2 .0935-4 0.0                +PAR 541
 1392-         +PAR 541  -.3185   .7500   .0000   .7500  -.3484   .0000  -.2885   .0000+P2R 541
 1393-         +P2R 541 .306677 .722212  0.
 1394-         PBAR    542     11      .3115-1 .2342-2 .3971-2 .0935-4 0.0                +PAR 542
 1395-         +PAR 542   .3185   .7500   .0000   .7500   .3484   .0000   .2885   .0000+P2R 542
 1396-         +P2R 542 .306677 .722212  0.
 1397-         PBAR    543     11      .2943-1 .1503-2 .3971-2 .0883-4 0.0                +PAR 543
 1398-         +PAR 543  -.2609   .7500   .0000   .7500  -.2885   .0000  -.2334   .0000+P2R 543
 1399-         +P2R 543 .256008 .764575  0.
 1400-         PBAR    544     11      .2943-1 .1503-2 .3971-2 .0883-4 0.0                +PAR 544
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S O R T E D   B U L K   D A T A   E C H O

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 CARD
 COUNT     .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
 1401-     +PAR 544   .2609   .7500   .0000   .7500   .2885   .0000   .2334   .0000+P2R 544
 1402-     +P2R 544 .266008 .764575  0.
 1403-     PBAR    545     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0                 +PAR 545
 1404-     +PAR 545  -.6892   .7500   .0000   .7500  -.6959   .0000  -.6825   .0000+P2R 545
 1405-     +P2R 545 .660026 .359127  0.
 1406-     PBAR    546     11      .4177-1 1.0918-2.2597-2 .1628-4 0.0                 +PAR 546
 1407-     +PAR 546   .6892   .7500   .0000   .7500   .6959   .0000   .6825   .0000+P2R 546
 1408-     +P2R 546 .660026 .359127  0.
 1409-     PBAR    547     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0                 +PAR 547
 1410-     +PAR 547  -.6622   .7500   .0000   .7500  -.6825   .0000  -.6420   .0000+P2R 547
 1411-     +P2R 547 .651013 .368648  0.
 1412-     PBAR    548     11      .4069-1 .9930-2 .2597-2 .1570-4 0.0                 +PAR 548
 1413-     +PAR 548   .6622   .7500   .0000   .7500   .6825   .0000   .6420   .0000+P2R 548
 1414-     +P2R 548 .651013 .368648  0.
 1415-     PBAR    549     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0                 +PAR 549
 1416-     +PAR 549  -.6330   .7500   .0000   .7500  -.6420   .0000  -.6241   .0000+P2R 549
 1417-     +P2R 549 .467863 .554310  0.
 1418-     PBAR    550     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0                 +PAR 550
 1419-     +PAR 550   .6330   .7500   .0000   .7500   .6420   .0000   .6241   .0000+P2R 550
 1420-     +P2R 550 .467863 .554310  0.
 1421-     PBAR    551     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0                 +PAR 551
 1422-     +PAR 551  -.5993   .7500   .0000   .7500  -.6241   .0000  -.5746   .0000+P2R 551
 1423-     +P2R 551 .454276 .568463  0.
 1424-     PBAR    552     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0                 +PAR 552
 1425-     +PAR 552   .5993   .7500   .0000   .7500   .6241   .0000   .5746   .0000+P2R 552
 1426-     +P2R 552 .454276 .568463  0.
 1427-     PBAR    553     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0                 +PAR 553
 1428-     +PAR 553  -.5552   .7500   .0000   .7500  -.5746   .0000  -.5357   .0000+P2R 553
 1429-     +P2R 553 .435365 .588161  0.
 1430-     PBAR    554     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0                 +PAR 554
 1431-     +PAR 554   .5552   .7500   .0000   .7500   .5746   .0000   .5357   .0000+P2R 554
 1432-     +P2R 554 .435365 .588161  0.
 1433-     PBAR    555     11      .3709-1 .6818-2 .3972-2 .1113-4 0.0                 +PAR 555
 1434-     +PAR 555  -.5162   .7500   .0000   .7500  -.5357   .0000  -.4968   .0000+P2R 555
 1435-     +P2R 555 .417581 .606686  0.
 1436-     PBAR    556     11      .3709-1 .6818-2 .3972-2 .1113-4 0.0                 +PAR 556
 1437-     +PAR 556   .5162   .7500   .0000   .7500   .5357   .0000   .4968   .0000+P2R 556
 1438-     +P2R 556 .417581 .606686  0.
 1439-     PBAR    557     11      .3576-1 .5587-2 .3972-2 .1073-4 0.0                 +PAR 557
 1440-     +PAR 557  -.4720   .7500   .0000   .7500  -.4968   .0000  -.4473   .0000+P2R 557
 1441-     +P2R 557 .395992 .629175  0.
 1442-     PBAR    558     11      .3576-1 .5537-2 .3972-2 .1073-4 0.0                 +PAR 558
 1443-     +PAR 558   .4720   .7500   .0000   .7500   .4968   .0000   .4473   .0000+P2R 558
 1444-     +P2R 558 .395992 .629175  0.
 1445-     PBAR    559     11      .3428-1 .4366-2 .3972-2 .1028-4 0.0                 +PAR 559
 1446-     +PAR 559  -.4226   .7500   .0000   .7500  -.4473   .0000  -.3979   .0000+P2R 559
 1447-     +P2R 559 .369858 .656398  0.
 1448-     PBAR    560     11      .3428-1 .4366-2 .3972-2 .1028-4 0.0                 +PAR 560
 1449-     +PAR 560   .4226   .7500   .0000   .7500   .4473   .0000   .3979   .0000+P2R 560
 1450-     +P2R 560 .369858 .656398  0.
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1451-      PBAR    561     11      .3279-1 .3312-2 .3971-2 .0984-4 0.0             +PAR 561
1452-      +PAR 561  -.3732   .7500   .0000   .7500   -.3979  .0000   -.3484  .0000+P2R 561
1453-      +P2R 561 .341361 .686082  0.
1454-      PBAR    562     11      .3279-1 .3312-2 .3971-2 .0984-4 0.0             +PAR 562
1455-      +PAR 562   .3732   .7500   .0000   .7500   .3979   .0000   .3484   .0000+P2R 562
1456-      +P2R 562 .341361 .686082  0.
1457-      PBAR    563     11      .3115-1 .2342-2 .3971-2 .0935-4 0.0             +PAR 563
1458-      +PAR 563  -.3185   .7500   .0000   .7500   -.3484  .0000   -.2885  .0000+P2R 563
1459-      +P2R 563 .306677 .722212  0.
1460-      PBAR    564     11      .3115-1 .2342-2 .3971-2 .0935-4 0.0             +PAR 564
1461-      +PAR 564   .3185   .7500   .0000   .7500   .3484   .0000   .2885   .0000+P2R 564
1462-      +P2R 564 .306677 .722212  0.
1463-      PBAR    565     11      .2943-1 .1508-2 .3971-2 .0883-4 0.0             +PAR 565
1464-      +PAR 565  -.2609   .7500   .0000   .7500   -.2885  .0000   -.2334  .0000+P2R 565
1465-      +P2R 565 .266008 .764575  0.
1466-      PBAR    566     11      .2943-1 .1508-2 .3971-2 .0883-4 0.0             +PAR 566
1467-      +PAR 566   .2609   .7500   .0000   .7500   .2885   .0000   .2334   .0000+P2R 566
1468-      +P2R 566 .266008 .764575  0.
1469-      PBAR    567     11      .6205-1 1.5961-2.3745-2 .5421-4 0.0             +PAR 567
1470-      +PAR 567  -.6892   .7500   .0000   .7500   -.6959  .0000   -.6825  .0000+P2R 567
1471-      +P2R 567 .666408 .362600  0.
1472-      PBAR    568     11      .6205-1 1.5961-2.3745-2 .5421-4 0.0             +PAR 568
1473-      +PAR 568   .6892   .7500   .0000   .7500   .6959   .0000   .6825   .0000+P2R 568
1474-      +P2R 568 .666408 .362600  0.
1475-      PBAR    569     11      .6043-1 1.4506-2.3744-2 .5227-4 0.0             +PAR 569
1476-      +PAR 569  -.6622   .7500   .0000   .7500   -.6825  .0000   -.6420  .0000+P2R 569
1477-      +P2R 569 .657476 .372309  0.
1478-      PBAR    570     11      .6043-1 1.4506-2.3744-2 .5227-4 0.0             +PAR 570
1479-      +PAR 570   .6622   .7500   .0000   .7500   .6825   .0000   .6420   .0000+P2R 570
1480-      +P2R 570 .657476 .372309  0.
1481-      PBAR    571     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0             +PAR 571
1482-      +PAR 571  -.6330   .7500   .0000   .7500   -.6420  .0000   -.6241  .0000+P2R 571
1483-      +P2R 571 .467863 .554310  0.
1484-      PBAR    572     11      .4059-1 1.0792-2.3972-2 .1218-4 0.0             +PAR 572
1485-      +PAR 572   .6330   .7500   .0000   .7500   .6420   .0000   .6241   .0000+P2R 572
1486-      +P2R 572 .467863 .554310  0.
1487-      PBAR    573     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0             +PAR 573
1488-      +PAR 573  -.5993   .7500   .0000   .7500   -.6241  .0000   -.5746  .0000+P2R 573
1489-      +P2R 573 .454276 .568463  0.
1490-      PBAR    574     11      .3958-1 .9554-2 .3972-2 .1187-4 0.0             +PAR 574
1491-      +PAR 574   .5993   .7500   .0000   .7500   .6241   .0000   .5746   .0000+P2R 574
1492-      +P2R 574 .454276 .568463  0.
1493-      PBAR    575     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0             +PAR 575
1494-      +PAR 575  -.5552   .7500   .0000   .7500   -.5746  .0000   -.5357  .0000+P2R 575
1495-      +P2R 575 .435365 .588161  0.
1496-      PBAR    576     11      .3825-1 .8029-2 .3972-2 .1148-4 0.0             +PAR 576
1497-      +PAR 576   .5552   .7500   .0000   .7500   .5746   .0000   .5357   .0000+P2R 576
1498-      +P2R 576 .435365 .588161  0.
1499-      PBAR    577     11      .3709-1 .6818-2 .3972-2 .1113-4 0.0             +PAR 577
1500-      +PAR 577  -.5162   .7500   .0000   .7500   -.5357  .0000   -.4968  .0000+P2R 577
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S O R T E D   B U L K   D A T A   E C H O

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 CARD
 COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  .. 10  .
 1501-      +P2R 577 .417581 .606686  0.
 1502-      PBAR    578     11       .3709-1 .6818-2 .3972-2 .1113-4 0.0             +PAR 578
 1503-      +PAR 578   .5162   .7500   .0000   .7500   .5357   .0000   .4968   .0000+P2R 578
 1504-      +P2R 578 .417581 .606686  0.
 1505-      PBAR    579     11       .3576-1 .5587-2 .3972-2 .1073-4 0.0             +PAR 579
 1506-      +PAR 579  -.4720   .7500   .0000   .7500  -.4968   .0000  -.4473   .0000+P2R 579
 1507-      +P2R 579 .395992 .629175  0.
 1508-      PBAR    580     11       .3576-1 .5587-2 .3972-2 .1073-4 0.0             +PAR 580
 1509-      +PAR 580   .4720   .7500   .0000   .7500   .4968   .0000   .4473   .0000+P2R 580
 1510-      +P2R 580 .395992 .629175  0.
 1511-      PBAR    581     11       .3428-1 .4366-2 .3972-2 .1028-4 0.0             +PAR 581
 1512-      +PAR 581  -.4226   .7500   .0000   .7500  -.4473   .0000  -.3979   .0000+P2R 581
 1513-      +P2R 581 .369858 .656398  0.
 1514-      PBAR    582     11       .3428-1 .4366-2 .3972-2 .1028-4 0.0             +PAR 582
 1515-      +PAR 582   .4226   .7500   .0000   .7500   .4473   .0000   .3979   .0000+P2R 582
 1516-      +P2R 582 .369858 .656398  0.
 1517-      PBAR    583     11       .3279-1 .3312-2 .3971-2 .0984-4 0.0             +PAR 583
 1518-      +PAR 583  -.3732   .7500   .0000   .7500  -.3979   .0000  -.3484   .0000+P2R 583
 1519-      +P2R 583 .341361 .686082  0.
 1520-      PBAR    584     11       .3279-1 .3312-2 .3971-2 .0984-4 0.0             +PAR 584
 1521-      +PAR 584   .3732   .7500   .0000   .7500   .3979   .0000   .3484   .0000+P2R 584
 1522-      +P2R 584 .341361 .686082  0.
 1523-      PBAR    585     11       .3115-1 .2342-2 .3971-2 .0935-4 0.0             +PAR 585
 1524-      +PAR 585  -.3185   .7500   .0000   .7500  -.3484   .0000  -.2885   .0000+P2R 585
 1525-      +P2R 585 .306677 .722212  0.
 1526-      PBAR    586     11       .3115-1 .2342-2 .3971-2 .0935-4 0.0             +PAR 586
 1527-      +PAR 586   .3185   .7500   .0000   .7500   .3484   .0000   .2885   .0000+P2R 586
 1528-      +P2R 586 .306677 .722212  0.
 1529-      PBAR    587     11       .2943-1 .1508-2 .3971-2 .0883-4 0.0             +PAR 587
 1530-      +PAR 587  -.2609   .7500   .0000   .7500  -.2885   .0000  -.2334   .0000+P2R 587
 1531-      +P2R 587 .266008 .764575  0.
 1532-      PBAR    588     11       .2943-1 .1508-2 .3971-2 .0883-4 0.0             +PAR 588
 1533-      +PAR 588   .2609   .7500   .0000   .7500   .2885   .0000   .2334   .0000+P2R 588
 1534-      +P2R 588 .266008 .764575  0.
 1535-      PBAR    589     11       .6205-1 1.5961-2.3745-2 .5421-4 0.0             +PAR 589
 1536-      +PAR 589  -.6892   .7500   .0000   .7500  -.6959   .0000  -.6825   .0000+P2R 589
 1537-      +P2R 589 .666403 .362600  0.
 1538-      PBAR    590     11       .6205-1 1.5961-2.3745-2 .5421-4 0.0             +PAR 590
 1539-      +PAR 590   .6892   .7500   .0000   .7500   .6959   .0000   .6825   .0000+P2R 590
 1540-      +P2R 590 .666403 .362600  0.
 1541-      PBAR    591     11       .6043-1 1.4506-2.3744-2 .5227-4 0.0             +PAR 591
 1542-      +PAR 591  -.6622   .7500   .0000   .7500  -.6825   .0000  -.6420   .0000+P2R 591
 1543-      +P2R 591 .657476 .372309  0.
 1544-      PBAR    592     11       .6043-1 1.4506-2.3744-2 .5227-4 0.0             +PAR 592
 1545-      +PAR 592   .6622   .7500   .0000   .7500   .6825   .0000   .6420   .0000+P2R 592
 1546-      +P2R 592 .657476 .372309  0.
 1547-      PBAR    593     11       .4059-1 1.0792-2.3972-2 .1218-4 0.0             +PAR 593
 1548-      +PAR 593  -.6330   .7500   .0000   .7500  -.6420   .0000  -.6241   .0000+P2R 593
 1549-      +P2R 593 .467863 .554310  0.
 1550-      PBAR    594     11       .4059-1 1.0792-2.3972-2 .1218-4 0.0             +PAR 594
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                         S O R T E D   B U L K   D A T A   E C H O
CARD
COUNT        .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1551-        +PAR 594   .6330   .7500   .0000   .7500   .6420   .0000   .6241   .0000+P2R 594
1552-        +P2R 594 .467863 .554310  0.
1553-        PBAR    595     11       .3974-1 .9735-2 .3972-2 .1192-4 0.0               +PAR 595
1554-        +PAR 595  -.6046   .7500   .0000   .7500  -.6241   .0000  -.5851   .0000+P2R 595
1555-        +P2R 595 .456439 .566210  0.
1556-        PBAR    596     11       .3974-1 .9735-2 .3972-2 .1192-4 0.0               +PAR 596
1557-        +PAR 596   .6046   .7500   .0000   .7500   .6241   .0000   .5851   .0000+P2R 596
1558-        +P2R 596 .456439 .566210  0.
1559-        PBAR    597     11       .3857-1 .8376-2 .3972-2 .1157-4 0.0               +PAR 597
1560-        +PAR 597  -.5657   .7500   .0000   .7500  -.5851   .0000  -.5462   .0000+P2R 597
1561-        +P2R 597 .439977 .583358  0.
1562-        PBAR    598     11       .3857-1 .8376-2 .3972-2 .1157-4 0.0               +PAR 598
1563-        +PAR 598   .5657   .7500   .0000   .7500   .5851   .0000   .5462   .0000+P2R 598
1564-        +P2R 598 .439977 .583358  0.
1565-        PBAR    599     11       .3740-1 .7133-2 .3972-2 .1122-4 0.0               +PAR 599
1566-        +PAR 599  -.5267   .7500   .0000   .7500  -.5462   .0000  -.5073   .0000+P2R 599
1567-        +P2R 599 .422486 .601577  0.
1568-        PBAR    600     11       .3740-1 .7133-2 .3972-2 .1122-4 0.0               +PAR 600
1569-        +PAR 600   .5267   .7500   .0000   .7500   .5462   .0000   .5073   .0000+P2R 600
1570-        +P2R 600 .422486 .601577  0.
1571-        PBAR    601     11       .3608-1 .5869-2 .3972-2 .1082-4 0.0               +PAR 601
1572-        +PAR 601  -.4825   .7500   .0000   .7500  -.5073   .0000  -.4578   .0000+P2R 601
1573-        +P2R 601 .401266 .623681  0.
1574-        PBAR    602     11       .3608-1 .5869-2 .3972-2 .1082-4 0.0               +PAR 602
1575-        +PAR 602   .4825   .7500   .0000   .7500   .5073   .0000   .4578   .0000+P2R 602
1576-        +P2R 602 .401266 .623681  0.
1577-        PBAR    603     11       .3459-1 .4611-2 .3972-2 .1038-4 0.0               +PAR 603
1578-        +PAR 603  -.4331   .7500   .0000   .7500  -.4578   .0000  -.4084   .0000+P2R 603
1579-        +P2R 603 .375596 .650421  0.
1580-        PBAR    604     11       .3459-1 .4611-2 .3972-2 .1038-4 0.0               +PAR 604
1581-        +PAR 604   .4331   .7500   .0000   .7500   .4578   .0000   .4084   .0000+P2R 604
1582-        +P2R 604 .375596 .650421  0.
1583-        PBAR    605     11       .3295-1 .3426-2 .3971-2 .0989-4 0.0               +PAR 605
1584-        +PAR 605  -.3784   .7500   .0000   .7500  -.4084   .0000  -.3484   .0000+P2R 605
1585-        +P2R 605 .344509 .682803  0.
1586-        PBAR    606     11       .3295-1 .3426-2 .3971-2 .0989-4 0.0               +PAR 606
1587-        +PAR 606   .3784   .7500   .0000   .7500   .4084   .0000   .3484   .0000+P2R 606
1588-        +P2R 606 .344509 .682803  0.
1589-        PBAR    607     11       .3115-1 .2342-2 .3971-2 .0935-4 0.0               +PAR 607
1590-        +PAR 607  -.3185   .7500   .0000   .7500  -.3484   .0000  -.2885   .0000+P2R 607
1591-        +P2R 607 .306677 .722212  0.
1592-        PBAR    608     11       .3115-1 .2342-2 .3971-2 .0935-4 0.0               +PAR 608
1593-        +PAR 608   .3185   .7500   .0000   .7500   .3484   .0000   .2885   .0000+P2R 608
1594-        +P2R 608 .306677 .722212  0.
1595-        PBAR    609     11       .2943-1 .1508-2 .3971-2 .0883-4 0.0               +PAR 609
1596-        +PAR 609  -.2609   .7500   .0000   .7500  -.2885   .0000  -.2334   .0000+P2R 609
1597-        +P2R 609 .256008 .764575  0.
1598-        PBAR    610     11       .2943-1 .1508-2 .3971-2 .0883-4 0.0               +PAR 610
1599-        +PAR 610   .2609   .7500   .0000   .7500   .2885   .0000   .2334   .0000+P2R 610
1600-        +P2R 610 .256008 .764575  0.
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1601-      PBAR    611     11      .8477-1 2.7748-24.3227-2.4521-4 0.0          +PAR 611
1602-      +PAR 611  -.6593  1.5000   .0000  1.5000  -.6840   .0000  -.6346  .0000+P2R 611
1603-      +P2R 611 .311083 .707736  0.
1604-      PBAR    612     11      .8477-1 2.7748-24.3227-2.4521-4 0.0          +PAR 612
1605-      +PAR 612   .6593  1.5000   .0000  1.5000   .6840   .0000   .6346  .0000+P2R 612
1606-      +P2R 612 .311083 .707736  0.
1607-      PBAR    613     11      .8321-1 2.4256-24.3227-2.4438-4 0.0          +PAR 613
1608-      +PAR 613  -.6203  1.5000   .0000  1.5000  -.6346   .0000  -.6061  .0000+P2R 613
1609-      +P2R 613 .298194 .721034  0.
1610-      PBAR    614     11      .8321-1 2.4255-24.3227-2.4438-4 0.0          +PAR 614
1611-      +PAR 614   .6203  1.5000   .0000  1.5000   .6346   .0000   .6061  .0000+P2R 614
1612-      +P2R 614 .298194 .721034  0.
1613-      PBAR    615     11      .8187-1 2.1483-24.3227-2.4366-4 0.0          +PAR 615
1614-      +PAR 615  -.5867  1.5000   .0000  1.5000  -.6061   .0000  -.5672  .0000+P2R 615
1615-      +P2R 615 .286643 .732901  0.
1616-      PBAR    616     11      .8187-1 2.1483-24.3227-2.4366-4 0.0          +PAR 616
1617-      +PAR 616   .5867  1.5000   .0000  1.5000   .6061   .0000   .5672  .0000+P2R 616
1618-      +P2R 616 .286643 .732901  0.
1619-      PBAR    617     11      .8010-1 1.8127-24.3227-2.4272-4 0.0          +PAR 617
1620-      +PAR 617  -.5425  1.5000   .0000  1.5000  -.5672   .0000  -.5178  .0000+P2R 617
1621-      +P2R 617 .270902 .749074  0.
1622-      PBAR    618     11      .8010-1 1.8127-24.3227-2.4272-4 0.0          +PAR 618
1623-      +PAR 618   .5425  1.5000   .0000  1.5000   .5672   .0000   .5178  .0000+P2R 618
1624-      +P2R 618 .270902 .749074  0.
1625-      PBAR    619     11      .7791-1 1.4405-24.3226-2.4155-4 0.0          +PAR 619
1626-      +PAR 619  -.4873  1.5000   .0000  1.5000  -.5178   .0000  -.4578  .0000+P2R 619
1627-      +P2R 619 .250431 .770105  0.
1628-      PBAR    620     11      .7791-1 1.4405-24.3226-2.4155-4 0.0          +PAR 620
1629-      +PAR 620   .4873  1.5000   .0000  1.5000   .5178   .0000   .4578  .0000+P2R 620
1630-      +P2R 620 .250431 .770105  0.
1631-      PBAR    621     11      .7572-1 1.1103-24.3226-2.4039-4 0.0          +PAR 621
1632-      +PAR 621  -.4331  1.5000   .0000  1.5000  -.4578   .0000  -.4084  .0000+P2R 621
1633-      +P2R 621 .228773 .792351  0.
1634-      PBAR    622     11      .7572-1 1.1103-24.3226-2.4039-4 0.0          +PAR 622
1635-      +PAR 622   .4331  1.5000   .0000  1.5000   .4578   .0000   .4084  .0000+P2R 622
1636-      +P2R 622 .228778 .792351  0.
1637-      PBAR    623     11      .7354-1 .8298-2 4.3226-2.3922-4 0.0          +PAR 623
1638-      +PAR 623  -.3784  1.5000   .0000  1.5000  -.4084   .0000  -.3484  .0000+P2R 623
1639-      +P2R 623 .205837 .815921  0.
1640-      PBAR    624     11      .7354-1 .8298-2 4.3226-2.3922-4 0.0          +PAR 624
1641-      +PAR 624   .3784  1.5000   .0000  1.5000   .4084   .0000   .3484  .0000+P2R 624
1642-      +P2R 624 .205837 .815921  0.
1643-      PBAR    625     11      .7114-1 .5705-2 4.3225-2.3794-4 0.0          +PAR 625
1644-      +PAR 625  -.3185  1.5000   .0000  1.5000  -.3484   .0000  -.2885  .0000+P2R 625
1645-      +P2R 625 .179073 .843418  0.
1646-      PBAR    626     11      .7114-1 .5705-2 4.3225-2.3794-4 0.0          +PAR 626
1647-      +PAR 626   .3185  1.5000   .0000  1.5000   .3484   .0000   .2885  .0000+P2R 626
1648-      +P2R 626 .179073 .843418  0.
1649-      PBAR    627     11      .6884-1 .3637-2 4.3225-2.3671-4 0.0          +PAR 627
1650-      +PAR 627  -.2609  1.5000   .0000  1.5000  -.2885   .0000  -.2334  .0000+P2R 627
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1651-      +P2R 627 .151625 .871618  0.
1652-      PBAR     628     11      .6884-1 .3687-2 4.3225-2.3671-4 0.0          +PAR 628
1653-      +PAR 628   .2609  1.5000   .0000  1.5000   .2885   .0000   .2334   .0000+P2R 628
1654-      +P2R 628 .151625 .871618  0.
1655-      PBAR     629     11      .2281-1 .2804-2 .2702-2 .0304-4 0.0          +PAR 629
1656-      +PAR 629  -.4103   .7500   .0000   .7500  -.4230   .0000  -.3975   .0000+P2R 629
1657-      +P2R 629 .359801 .657739  0.
1658-      PBAR     630     11      .2281-1 .2804-2 .2702-2 .0304-4 0.0          +PAR 630
1659-      +PAR 630   .4103   .7500   .0000   .7500   .4230   .0000   .3975   .0000+P2R 630
1660-      +P2R 630 .359801 .657739  0.
1661-      PBAR     631     11      .2219-1 .2366-2 .2702-2 .0296-4 0.0          +PAR 631
1662-      +PAR 631  -.3796   .7500   .0000   .7500  -.3975   .0000  -.3616   .0000+P2R 631
1663-      +P2R 631 .342081 .675945  0.
1664-      PBAR     632     11      .2219-1 .2366-2 .2702-2 .0296-4 0.0          +PAR 632
1665-      +PAR 632   .3796   .7500   .0000   .7500   .3975   .0000   .3616   .0000+P2R 632
1666-      +P2R 632 .342081 .675945  0.
1667-      PBAR     633     11      .2158-1 .1963-2 .2702-2 .0288-4 0.0          +PAR 633
1668-      +PAR 633  -.3488   .7500   .0000   .7500  -.3616   .0000  -.3361   .0000+P2R 633
1669-      +P2R 633 .323351 .695187  0.
1670-      PBAR     634     11      .2158-1 .1963-2 .2702-2 .0288-4 0.0          +PAR 634
1671-      +PAR 634   .3488   .7500   .0000   .7500   .3616   .0000   .3361   .0000+P2R 634
1672-      +P2R 634 .323351 .695187  0.
1673-      PBAR     635     11      .2096-1 .1608-2 .2702-2 .0280-4 0.0          +PAR 635
1674-      +PAR 635  -.3181   .7500   .0000   .7500  -.3361   .0000  -.3002   .0000+P2R 635
1675-      +P2R 635 .303524 .715557  0.
1676-      PBAR     636     11      .2096-1 .1608-2 .2702-2 .0280-4 0.0          +PAR 636
1677-      +PAR 636   .3181   .7500   .0000   .7500   .3361   .0000   .3002   .0000+P2R 636
1678-      +P2R 636 .303524 .715557  0.
1679-      PBAR     637     11      .2024-1 .1238-2 .2702-2 .0270-4 0.0          +PAR 637
1680-      +PAR 637  -.2822   .7500   .0000   .7500  -.3002   .0000  -.2642   .0000+P2R 637
1681-      +P2R 637 .278779 .740981  0.
1682-      PBAR     638     11      .2024-1 .1238-2 .2702-2 .0270-4 0.0          +PAR 638
1683-      +PAR 638   .2822   .7500   .0000   .7500   .3002   .0000   .2642   .0000+P2R 638
1684-      +P2R 638 .278779 .740981  0.
1685-      PBAR     639     11      .1952-1 .0921-2 .2702-2 .0260-4 0.0          +PAR 639
1686-      +PAR 639  -.2462   .7500   .0000   .7500  -.2642   .0000  -.2282   .0000+P2R 639
1687-      +P2R 639 .252210 .768277  0.
1688-      PBAR     640     11      .1952-1 .0921-2 .2702-2 .0260-4 0.0          +PAR 640
1689-      +PAR 640   .2462   .7500   .0000   .7500   .2642   .0000   .2282   .0000+P2R 640
1690-      +P2R 640 .252210 .768277  0.
1691-      PBAR     641     11      .1880-1 .0654-2 .2702-2 .0251-4 0.0          +PAR 641
1692-      +PAR 641  -.2102   .7500   .0000   .7500  -.2282   .0000  -.1923   .0000+P2R 641
1693-      +P2R 641 .223609 .797662  0.
1694-      PBAR     642     11      .1880-1 .0654-2 .2702-2 .0251-4 0.0          +PAR 642
1695-      +PAR 642   .2102   .7500   .0000   .7500   .2282   .0000   .1923   .0000+P2R 642
1696-      +P2R 642 .223609 .797662  0.
1697-      PBAR     643     11      .1809-1 .0436-2 .2702-2 .0241-4 0.0          +PAR 643
1698-      +PAR 643  -.1743   .7500   .0000   .7500  -.1923   .0000  -.1563   .0000+P2R 643
1699-      +P2R 643 .192733 .829384  0.
1700-      PBAR     644     11      .1809-1 .0436-2 .2702-2 .0241-4 0.0          +PAR 644
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT         .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
 1701-        +PAR 644   .1743    .7500    .0000    .7500    .1923    .0000    .1563   .0000+P2R 644
 1702-        +P2R 644 .192733 .829384  0.
 1703-        PBAR    645      11       .1740-1 .0269-2 .2702-2 .0232-4 0.0                 +PAR 645
 1704-        +PAR 645  -.1398    .7500    .0000    .7500   -.1563    .0000   -.1232   .0000+P2R 645
 1705-        +P2R 645 .160690 .862304  0.
 1706-        PBAR    646      11       .1740-1 .0269-2 .2702-2 .0232-4 0.0                 +PAR 646
 1707-        +PAR 646   .1398    .7500    .0000    .7500    .1563    .0000    .1232   .0000+P2R 646
 1708-        +P2R 646 .160690 .862304  0.
 1709-        PBAR    701      13       .4500-1 .0150-4 .75937  .0600-4 0.0                 +PAR 701
 1710-        +PAR 701   .0000    .0000    .0100    .0000    .0000    .0000    .0000   .0000+P2R 701
 1711-        +P2R 701   .8333   1.0000  0.
 1712-        PBAR    702      13       .9000-1 .0300-4 1.51875 .1200-4 0.0                 +PAR 702
 1713-        +PAR 702   .0000    .0000    .0100    .0000    .0000    .0000    .0000   .0000+P2R 702
 1714-        +P2R 702   .8333   1.0000  0.
 1715-        PBAR    703      13       .4500-1 .0150-4 .75937  .0600-4 0.0                 +PAR 703
 1716-        +PAR 703   .0000    .0000    .0100    .0000    .0000    .0000    .0000   .0000+P2R 703
 1717-        +P2R 703   .8333   1.0000  0.
 1718-        PBAR    704      13       1.5739-1.2099-4 8.12214 .3394-4 0.0                 +PAR 704
 1719-        +PAR 704   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 704
 1720-        +P2R 704   .8333   1.0000  0.
 1721-        PBAR    705      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 705
 1722-        +PAR 705   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 705
 1723-        +P2R 705   .8333   1.0000  0.
 1724-        PBAR    706      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 706
 1725-        +PAR 706   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 706
 1726-        +P2R 706   .8333   1.0000  0.
 1727-        PBAR    707      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 707
 1728-        +PAR 707   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 707
 1729-        +P2R 707   .8333   1.0000  0.
 1730-        PBAR    708      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 708
 1731-        +PAR 708   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 708
 1732-        +P2R 708   .8333   1.0000  0.
 1733-        PBAR    709      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 709
 1734-        +PAR 709   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 709
 1735-        +P2R 709   .8333   1.0000  0.
 1736-        PBAR    710      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 710
 1737-        +PAR 710   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 710
 1738-        +P2R 710   .8333   1.0000  0.
 1739-        PBAR    711      13       3.1478-1.4197-4 16.244431.6788-40.0                 +PAR 711
 1740-        +PAR 711   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 711
 1741-        +P2R 711   .8333   1.0000  0.
 1742-        PBAR    712      13       3.0219-1.4029-4 14.446391.6117-40.0                 +PAR 712
 1743-        +PAR 712   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 712
 1744-        +P2R 712   .8333   1.0000  0.
 1745-        PBAR    713      13       1.4480-1.1931-4 6.32462 .7723-4 0.0                 +PAR 713
 1746-        +PAR 713   .0000    .0000    .0200    .0000    .0000    .0000    .0000   .0000+P2R 713
 1747-        +P2R 713   .8333   1.0000  0.
 1748-        PBAR    714      13       .4500-1 .0150-4 .75937  .0600-4 0.0                 +PAR 714
 1749-        +PAR 714   .0000    .0000    .0100    .0000    .0000    .0000    .0000   .0000+P2R 714
 1750-        +P2R 714   .8333   1.0000  0.
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT     .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1751-     PBAR    715     13      .9000-1 .0300-4 1.51875 .1200-4 0.0            +PAR 715
1752-     +PAR 715  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 715
1753-     +P2R 715  .8333   1.0000  0.
1754-     PBAR    715     13      .4500-1 .0150-4 .75937  .0600-4 0.0            +PAR 716
1755-     +PAR 716  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 716
1756-     +P2R 716  .8333   1.0000  0.
1757-     PBAR    717     13      1.1105-1.0833-4 5.07193 .3331-4 0.0            +PAR 717
1758-     +PAR 717  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 717
1759-     +P2R 717  .8333   1.0000  0.
1760-     PBAR    718     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 718
1761-     +PAR 718  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 718
1762-     +P2R 718  .8333   1.0000  0.
1763-     PBAR    719     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 719
1764-     +PAR 719  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 719
1765-     +P2R 719  .8333   1.0000  0.
1766-     PBAR    720     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 720
1767-     +PAR 720  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 720
1768-     +P2R 720  .8333   1.0000  0.
1769-     PBAR    721     13      2.2210-1.1665-4 10.14395.6663-4 0.0            +PAR 721
1770-     +PAR 721  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 721
1771-     +P2R 721  .8333   1.0000  0.
1772-     PBAR    722     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 722
1773-     +PAR 722  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 722
1774-     +P2R 722  .8333   1.0000  0.
1775-     PBAR    723     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 723
1776-     +PAR 723  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 723
1777-     +P2R 723  .8333   1.0000  0.
1778-     PBAR    724     13      2.2210-1.1666-4 10.14395.6663-4 0.0            +PAR 724
1779-     +PAR 724  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 724
1780-     +P2R 724  .8333   1.0000  0.
1781-     PBAR    725     13      2.1321-1.1599-4 9.02147 .6395-4 0.0            +PAR 725
1782-     +PAR 725  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 725
1783-     +P2R 725  .8333   1.0000  0.
1784-     PBAR    726     13      1.0216-1.0766-4 3.94945 .3065-4 0.0            +PAR 726
1785-     +PAR 726  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 726
1786-     +P2R 726  .8333   1.0000  0.
1787-     PBAR    727     13      .4500-1 .0150-4 .75937  .0600-4 0.0            +PAR 727
1788-     +PAR 727  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 727
1789-     +P2R 727  .8333   1.0000  0.
1790-     PBAR    728     13      .9000-1 .0300-4 1.51875 .1200-4 0.0            +PAR 728
1791-     +PAR 728  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 728
1792-     +P2R 728  .8333   1.0000  0.
1793-     PBAR    729     13      .4500-1 .0150-4 .75937  .0600-4 0.0            +PAR 729
1794-     +PAR 729  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 729
1795-     +P2R 729  .8333   1.0000  0.
1796-     PBAR    730     13      1.0446-1.0783-4 4.22114 .3134-4 0.0            +PAR 730
1797-     +PAR 730  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 730
1798-     +P2R 730  .8333   1.0000  0.
1799-     PBAR    731     13      2.0891-1.1567-4 8.44235 .6267-4 0.0            +PAR 731
1800-     +PAR 731  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 731
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                              S O R T E D   B U L K   D A T A   E C H O
 CARD
 COUNT        .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
 1801-        +P2R 731   .8333  1.0000  0.
 1802-        PBAR    732     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 732
 1803-        +PAR 732   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 732
 1804-        +P2R 732   .8333  1.0000  0.
 1805-        PBAR    733     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 733
 1806-        +PAR 733   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 733
 1807-        +P2R 733   .8333  1.0000  0.
 1808-        PBAR    734     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 734
 1809-        +PAR 734   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 734
 1810-        +P2R 734   .8333  1.0000  0.
 1811-        PBAR    735     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 735
 1812-        +PAR 735   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 735
 1813-        +P2R 735   .8333  1.0000  0.
 1814-        PBAR    736     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 736
 1815-        +PAR 736   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 736
 1816-        +P2R 736   .8333  1.0000  0.
 1817-        PBAR    737     13        2.0891-1.1567-4 8.44235 .6267-4 0.0                +PAR 737
 1818-        +PAR 737   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 737
 1819-        +P2R 737   .8333  1.0000  0.
 1820-        PBAR    738     13        2.0055-1.1504-4 7.50816 .6017-4 0.0                +PAR 738
 1821-        +PAR 738   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 738
 1822-        +P2R 738   .8333  1.0000  0.
 1823-        PBAR    739     13         .9610-1 .0721-4 3.28695 .2883-4 0.0                +PAR 739
 1824-        +PAR 739   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 739
 1825-        +P2R 739   .8333  1.0000  0.
 1826-        PBAR    740     13         .6750-1 .0506-4 1.13905 .2025-4 0.0                +PAR 740
 1827-        +PAR 740   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 740
 1828-        +P2R 740   .8333  1.0000  0.
 1829-        PBAR    741     13        1.3500-1.1012-4 2.27812 .4050-4 0.0                +PAR 741
 1830-        +PAR 741   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 741
 1831-        +P2R 741   .8333  1.0000  0.
 1832-        PBAR    742     13         .6750-1 .0506-4 1.13905 .2025-4 0.0                +PAR 742
 1833-        +PAR 742   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 742
 1834-        +P2R 742   .8333  1.0000  0.
 1835-        PBAR    743     13         .9828-1 .0737-4 3.51591 .2948-4 0.0                +PAR 743
 1836-        +PAR 743   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 743
 1837-        +P2R 743   .8333  1.0000  0.
 1838-        PBAR    744     13        1.9655-1.1474-4 7.03189 .5897-4 0.0                +PAR 744
 1839-        +PAR 744   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 744
 1840-        +P2R 744   .8333  1.0000  0.
 1841-        PBAR    745     13        1.9655-1.1474-4 7.03189 .5897-4 0.0                +PAR 745
 1842-        +PAR 745   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 745
 1843-        +P2R 745   .8333  1.0000  0.
 1844-        PBAR    746     13        1.9655-1.1474-4 7.03189 .5897-4 0.0                +PAR 746
 1845-        +PAR 746   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 746
 1846-        +P2R 746   .8333  1.0000  0.
 1847-        PBAR    747     13        1.9655-1.1474-4 7.03189 .5897-4 0.0                +PAR 747
 1848-        +PAR 747   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 747
 1849-        +P2R 747   .8333  1.0000  0.
 1850-        PBAR    748     13        1.9655-1.1474-4 7.03189 .5897-4 0.0                +PAR 748
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1851-      +PAR 748   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 748
1852-      +P2R 748   .8333  1.0000   0.
1853-      PBAR    749     13        1.9656-1.1474-4 7.03189 .5897-4 0.0         +PAR 749
1854-      +PAR 749   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 749
1855-      +P2R 749   .8333  1.0000   0.
1856-      PBAR    750     13        1.9655-1.1474-4 7.03189 .5897-4 0.0         +PAR 750
1857-      +PAR 750   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 750
1858-      +P2R 750   .8333  1.0000   0.
1859-      PBAR    751     13        1.8870-1.1415-4 6.25377 .5661-4 0.0         +PAR 751
1860-      +PAR 751   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 751
1861-      +P2R 751   .8333  1.0000   0.
1862-      PBAR    752     13        .9042-1 .0678-4 2.73780 .2713-4 0.0         +PAR 752
1863-      +PAR 752   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 752
1864-      +P2R 752   .8333  1.0000   0.
1865-      PBAR    753     13        .6750-1 .0506-4 1.13905 .2025-4 0.0         +PAR 753
1866-      +PAR 753   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 753
1867-      +P2R 753   .8333  1.0000   0.
1868-      PBAR    754     13        1.3500-1.1012-4 2.27812 .4050-4 0.0         +PAR 754
1869-      +PAR 754   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 754
1870-      +P2R 754   .8333  1.0000   0.
1871-      PBAR    755     13        .6750-1 .0506-4 1.13905 .2025-4 0.0         +PAR 755
1872-      +PAR 755   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 755
1873-      +P2R 755   .8333  1.0000   0.
1874-      PBAR    756     13        .9424-1 .0707-4 3.09982 .2827-4 0.0         +PAR 756
1875-      +PAR 756   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 756
1876-      +P2R 756   .8333  1.0000   0.
1877-      PBAR    757     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 757
1878-      +PAR 757   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 757
1879-      +P2R 757   .8333  1.0000   0.
1880-      PBAR    758     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 758
1881-      +PAR 758   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 758
1882-      +P2R 758   .8333  1.0000   0.
1883-      PBAR    759     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 759
1884-      +PAR 759   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 759
1885-      +P2R 759   .8333  1.0000   0.
1886-      PBAR    760     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 760
1887-      +PAR 760   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 760
1888-      +P2R 760   .8333  1.0000   0.
1889-      PBAR    761     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 761
1890-      +PAR 761   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 761
1891-      +P2R 761   .8333  1.0000   0.
1892-      PBAR    762     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 762
1893-      +PAR 762   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 762
1894-      +P2R 762   .8333  1.0000   0.
1895-      PBAR    763     13        1.8848-1.1414-4 6.19969 .5654-4 0.0         +PAR 763
1896-      +PAR 763   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 763
1897-      +P2R 763   .8333  1.0000   0.
1898-      PBAR    764     13        1.8094-1.1357-4 5.51366 .5423-4 0.0         +PAR 764
1899-      +PAR 764   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 764
1900-      +P2R 764   .8333  1.0000   0.
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
1901-      PBAR    765     13      .8670-1 .0650-4 2.41379 .2601-4 0.0             +PAR 765
1902-      +PAR 765   .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R 765
1903-      +P2R 765   .8333  1.0000  0.
1904-      PBAR    766     13      1.2096-1.1613-4 3.68732 .6451-4 0.0             +PAR 766
1905-      +PAR 766   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 766
1906-      +P2R 766   .8333  1.0000  0.
1907-      PBAR    767     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 767
1908-      +PAR 767   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 767
1909-      +P2R 767   .8333  1.0000  0.
1910-      PBAR    768     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 768
1911-      +PAR 768   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 768
1912-      +P2R 768   .8333  1.0000  0.
1913-      PBAR    769     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 769
1914-      +PAR 769   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 769
1915-      +P2R 769   .8333  1.0000  0.
1916-      PBAR    770     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 770
1917-      +PAR 770   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 770
1918-      +P2R 770   .8333  1.0000  0.
1919-      PBAR    771     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 771
1920-      +PAR 771   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 771
1921-      +P2R 771   .8333  1.0000  0.
1922-      PBAR    772     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 772
1923-      +PAR 772   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 772
1924-      +P2R 772   .8333  1.0000  0.
1925-      PBAR    773     13      2.4193-1.3226-4 7.37471 1.2903-40.0             +PAR 773
1926-      +PAR 773   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 773
1927-      +P2R 773   .8333  1.0000  0.
1928-      PBAR    774     13      2.3225-1.3097-4 6.55865 1.2387-40.0             +PAR 774
1929-      +PAR 774   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 774
1930-      +P2R 774   .8333  1.0000  0.
1931-      PBAR    775     13      1.1129-1.1484-4 2.87127 .5935-4 0.0             +PAR 775
1932-      +PAR 775   .0000   .0000   .0200   .0000   .0000   .0000   .0000   .0000+P2R 775
1933-      +P2R 775   .8333  1.0000  0.
1934-      PBAR    776     13      .5817-1 .0194-4 1.63990 .0776-4 0.0             +PAR 776
1935-      +PAR 776   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 776
1936-      +P2R 776   .8333  1.0000  0.
1937-      PBAR    777     13      1.1633-1.0388-4 3.27984 .1551-4 0.0             +PAR 777
1938-      +PAR 777   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 777
1939-      +P2R 777   .8333  1.0000  0.
1940-      PBAR    778     13      1.1633-1.0388-4 3.27984 .1551-4 0.0             +PAR 778
1941-      +PAR 778   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 778
1942-      +P2R 778   .8333  1.0000  0.
1943-      PBAR    779     13      1.1633-1.0388-4 3.27984 .1551-4 0.0             +PAR 779
1944-      +PAR 779   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 779
1945-      +P2R 779   .8333  1.0000  0.
1946-      PBAR    780     13      1.1633-1.0388-4 3.27984 .1551-4 0.0             +PAR 780
1947-      +PAR 780   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 780
1948-      +P2R 780   .8333  1.0000  0.
1949-      PBAR    781     13      1.1633-1.0388-4 3.27984 .1551-4 0.0             +PAR 781
1950-      +PAR 781   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 781
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S O R T E D   B U L K   D A T A   E C H O

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CARD
COUNT      .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
1951-      +P2R 781   .8333  1.0000  0.
1952-      PBAR    782     13      1.1633-1.0388-4 3.27984 .1551-4 0.0          +PAR 782
1953-      +PAR 782   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 782
1954-      +P2R 782   .8333  1.0000  0.
1955-      PBAR    783     13      1.1633-1.0388-4 3.27984 .1551-4 0.0          +PAR 783
1956-      +PAR 783   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 783
1957-      +P2R 783   .8333  1.0000  0.
1958-      PBAR    784     13      1.1168-1.0372-4 2.91690 .1489-4 0.0          +PAR 784
1959-      +PAR 784   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 784
1960-      +P2R 784   .8333  1.0000  0.
1961-      PBAR    785     13      .5351-1 .0178-4 1.27697 .0714-4 0.0          +PAR 785
1962-      +PAR 785   .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R 785
1963-      +P2R 785   .8333  1.0000  0.
1964-      PBAR    1101    11      .3146-1 .2937-2 .3971-2 .0944-4 0.0          +PAR1101
1965-      +PAR1101  -.3210   .7500   .0000   .7500  -.0000   .0000  -.6420   .0000+P2R1101
1966-      +P2R1101 .308358 .720460  0.
1967-      PBAR    1102    11      .3146-1 .2937-2 .3971-2 .0944-4 0.0          +PAR1102
1968-      +PAR1102   .3210   .7500   .0000   .7500   .0000   .0000   .6420   .0000+P2R1102
1969-      +P2R1102 .308358 .720460  0.
1970-      PBAR    1103    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1103
1971-      +PAR1103  -.6420  1.0000   .0000  1.0000  -.6420   .0000  -.6420   .0000+P2R1103
1972-      +P2R1103 .403267 .628140  0.
1973-      PBAR    1104    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1104
1974-      +PAR1104   .6420  1.0000   .0000  1.0000   .6420   .0000   .6420   .0000+P2R1104
1975-      +P2R1104 .403267 .628140  0.
1976-      PBAR    1105    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1105
1977-      +PAR1105  -.6420  1.0000   .0000  1.0000  -.6420   .0000  -.6420   .0000+P2R1105
1978-      +P2R1105 .403267 .628140  0.
1979-      PBAR    1106    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1106
1980-      +PAR1106   .6420  1.0000   .0000  1.0000   .6420   .0000   .6420   .0000+P2R1106
1981-      +P2R1106 .403267 .628140  0.
1982-      PBAR    1107    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1107
1983-      +PAR1107  -.6420  1.0000   .0000  1.0000  -.6420   .0000  -.6420   .0000+P2R1107
1984-      +P2R1107 .403267 .628140  0.
1985-      PBAR    1108    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1108
1986-      +PAR1108   .6420  1.0000   .0000  1.0000   .6420   .0000   .6420   .0000+P2R1108
1987-      +P2R1108 .403267 .628140  0.
1988-      PBAR    1109    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1109
1989-      +PAR1109  -.6420  1.0000   .0000  1.0000  -.6420   .0000  -.6420   .0000+P2R1109
1990-      +P2R1109 .403267 .628140  0.
1991-      PBAR    1110    11      .7960-1 2.2503-21.5454-2.6633-4 0.0          +PAR1110
1992-      +PAR1110   .6420  1.0000   .0000  1.0000   .6420   .0000   .6420   .0000+P2R1110
1993-      +P2R1110 .403267 .628140  0.
1994-      PBAR    1111    11      .2785-1 .8150-2 .2702-2 .0371-4 0.0          +PAR1111
1995-      +PAR1111  -.6630   .7500   .0000   .7500  -.6420   .0000  -.6840   .0000+P2R1111
1996-      +P2R1111 .475952 .538405  0.
1997-      PBAR    1112    11      .2785-1 .8150-2 .2702-2 .0371-4 0.0          +PAR1112
1998-      +PAR1112   .6630   .7500   .0000   .7500   .6420   .0000   .6840   .0000+P2R1112
1999-      +P2R1112 .475952 .538405  0.
2000-      PBAR    1113    11      .2545-1 .5602-2 .2702-2 .0339-4 0.0          +PAR1113
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                                S O R T E D   B U L K   D A T A   E C H O
CARD
COUNT        .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
2001-        +PAR1113  -.5535   .7500   .0000   .7500   -.6840  .0000   -.4230  .0000+P2R1113
2002-        +P2R1113 .431243 .584339  0.
2003-        PBAR    1114    11      .2545-1 .5602-2 .2702-2 .0339-4 0.0             +PAR1114
2004-        +PAR1114   .5535   .7500   .0000   .7500   .6840   .0000   .4230   .0000+P2R1114
2005-        +P2R1114 .431243 .584339  0.
2006-        PBAR    1115    11      .1877-1 .0727-2 .2702-2 .0250-4 0.0             +PAR1115
2007-        +PAR1115  -.2115   .7500   .0000   .7500   -.4230  .0000   -.0000  .0000+P2R1115
2008-        +P2R1115 .224642 .796601  0.
2009-        PBAR    1116    11      .1877-1 .0727-2 .2702-2 .0250-4 0.0             +PAR1116
2010-        +PAR1116   .2115   .7500   .0000   .7500   .4230   .0000   .0000   .0000+P2R1116
2011-        +P2R1116 .224642 .796601  0.
2012-        PBAR    1117    11      .1693-1 .0204-2 .2702-2 .0226-4 0.0             +PAR1117
2013-        +PAR1117  -.1167   .7500   .0000   .7500   -.0000  .0000   -.2334  .0000+P2R1117
2014-        +P2R1117 .137812 .885809  0.
2015-        PBAR    1118    11      .1693-1 .0204-2 .2702-2 .0226-4 0.0             +PAR1118
2016-        +PAR1118   .1167   .7500   .0000   .7500   .0000   .0000   .2334   .0000+P2R1118
2017-        +P2R1118 .137812 .885809  0.
2018-        PBAR    1119    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1119
2019-        +PAR1119  -.2334   .7500   .0000   .7500   -.2334  .0000   -.2334  .0000+P2R1119
2020-        +P2R1119 .242241 .778520  0.
2021-        PBAR    1120    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1120
2022-        +PAR1120   .2334   .7500   .0000   .7500   .2334   .0000   .2334   .0000+P2R1120
2023-        +P2R1120 .242241 .778520  0.
2024-        PBAR    1121    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1121
2025-        +PAR1121  -.2334   .7500   .0000   .7500   -.2334  .0000   -.2334  .0000+P2R1121
2026-        +P2R1121 .242241 .778520  0.
2027-        PBAR    1122    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1122
2028-        +PAR1122   .2334   .7500   .0000   .7500   .2334   .0000   .2334   .0000+P2R1122
2029-        +P2R1122 .242241 .778520  0.
2030-        PBAR    1123    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1123
2031-        +PAR1123  -.2334   .7500   .0000   .7500   -.2334  .0000   -.2334  .0000+P2R1123
2032-        +P2R1123 .242241 .778520  0.
2033-        PBAR    1124    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1124
2034-        +PAR1124   .2334   .7500   .0000   .7500   .2334   .0000   .2334   .0000+P2R1124
2035-        +P2R1124 .242241 .778520  0.
2036-        PBAR    1125    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1125
2037-        +PAR1125  -.2334   .7500   .0000   .7500   -.2334  .0000   -.2334  .0000+P2R1125
2038-        +P2R1125 .242241 .778520  0.
2039-        PBAR    1126    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1126
2040-        +PAR1126   .2334   .7500   .0000   .7500   .2334   .0000   .2334   .0000+P2R1126
2041-        +P2R1126 .242241 .778520  0.
2042-        PBAR    1127    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1127
2043-        +PAR1127  -.2334   .7500   .0000   .7500   -.2334  .0000   -.2334  .0000+P2R1127
2044-        +P2R1127 .242241 .778520  0.
2045-        PBAR    1128    11      .1927-1 .0814-2 .2702-2 .0257-4 0.0             +PAR1128
2046-        +PAR1128   .2334   .7500   .0000   .7500   .2334   .0000   .2334   .0000+P2R1128
2047-        +P2R1128 .242241 .778520  0.
2048-        PBAR    1129    11      .1217-1 .0507-2 .2702-2 .0242-4 0.0             +PAR1129
2049-        +PAR1129  -.1793   .7500   .0000   .7500   -.2334  .0000   -.1232  .0000+P2R1129
2050-        +P2R1129 .196295 .825725  0.
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                                 S O R T E D   B U L K   D A T A   E C H O
 CARD
 COUNT        .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10  .
 2051-        PBAR    1130    11      .1817-1 .0507-2 .2702-2 .0242-4 0.0             +PAR1130
 2052-        +PAR1130  .1783   .7500   .0000   .7500   .2334   .0000   .1232   .0000+P2R1130
 2053-        +P2R1130 .196295 .825725  0.
 2054-        PBAR    1131    11      .1583-1 .0051-2 .2702-2 .0211-4 0.0             +PAR1131
 2055-        +PAR1131  -.0616  .7500   .0000   .7500   -.1232  .0000   -.0000  .0000+P2R1131
 2056-        +P2R1131 .077829 .947436  0.
 2057-        PBAR    1132    11      .1583-1 .0051-2 .2702-2 .0211-4 0.0             +PAR1132
 2058-        +PAR1132  .0616   .7500   .0000   .7500   .1232   .0000   .0000   .0000+P2R1132
 2059-        +P2R1132 .077829 .947436  0.
 2060-        PBAR    1301    13      1.0943-1.0821-4 4.85331 .3283-4 0.0             +PAR1301
 2061-        +PAR1301  .0000   .0000   .0150   .0000   .0000   .0000   .0000   .0000+P2R1301
 2062-        +P2R1301  .8333   1.0000  0.
 2063-        PBAR    1302    13      2.0850-1.4344-4 12.085091.7375-40.0             +PAR1302
 2064-        +PAR1302  .0000   .0000   .0250   .0000   .0000   .0000   .0000   .0000+P2R1302
 2065-        +P2R1302  .8333   1.0000  0.
 2066-        PBAR    1303    13      4.1550-1.8656-4 23.911473.4625-40.0             +PAR1303
 2067-        +PAR1303  .0000   .0000   .0250   .0000   .0000   .0000   .0000   .0000+P2R1303
 2068-        +P2R1303  .8333   1.0000  0.
 2069-        PBAR    1304    13      4.1400-1.8625-4 23.652563.4500-40.0             +PAR1304
 2070-        +PAR1304  .0000   .0000   .0250   .0000   .0000   .0000   .0000   .0000+P2R1304
 2071-        +P2R1304  .8333   1.0000  0.
 2072-        PBAR    1305    13      3.5232-1.7340-4 15.918412.9360-40.0             +PAR1305
 2073-        +PAR1305  .0000   .0000   .0250   .0000   .0000   .0000   .0000   .0000+P2R1305
 2074-        +P2R1305  .8333   1.0000  0.
 2075-        PBAR    1306    13      1.7275-1.3599-4 6.87375 1.4396-40.0             +PAR1306
 2076-        +PAR1306  .0000   .0000   .0250   .0000   .0000   .0000   .0000   .0000+P2R1306
 2077-        +P2R1306  .8333   1.0000  0.
 2078-        PBAR    1307    13      .5242-1 .0175-4 1.20022 .0699-4 0.0             +PAR1307
 2079-        +PAR1307  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1307
 2080-        +P2R1307  .8333   1.0000  0.
 2081-        PBAR    1308    13      1.0872-1.0362-4 2.68760 .1450-4 0.0             +PAR1308
 2082-        +PAR1308  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1308
 2083-        +P2R1308  .8333   1.0000  0.
 2084-        PBAR    1309    13      1.4076-1.0469-4 6.50721 .1877-4 0.0             +PAR1309
 2085-        +PAR1309  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1309
 2086-        +P2R1309  .8333   1.0000  0.
 2087-        PBAR    1310    13      .5401-1 .0180-4 .33064  .0720-4 0.0             +PAR1310
 2088-        +PAR1310  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1310
 2089-        +P2R1310  .8333   1.0000  0.
 2090-        PBAR    1311    13      .5650-1 .0188-4 .37579  .0753-4 0.0             +PAR1311
 2091-        +PAR1311  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1311
 2092-        +P2R1311  .8333   1.0000  0.
 2093-        PBAR    1312    13      .5630-1 .0188-4 .37172  .0751-4 0.0             +PAR1312
 2094-        +PAR1312  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1312
 2095-        +P2R1312  .8333   1.0000  0.
 2096-        PBAR    1313    13      .4791-1 .0160-4 .25017  .0639-4 0.0             +PAR1313
 2097-        +PAR1313  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1313
 2098-        +P2R1313  .8333   1.0000  0.
 2099-        PBAR    1314    13      .3820-1 .0127-4 .11651  .0509-4 0.0             +PAR1314
 2100-        +PAR1314  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1314
```

S O R T E D   B U L K   D A T A   E C H O

```
 CARD
 COUNT     .   1  ..   2  ..   3  ..   4  ..   5  ..   6  ..   7  ..   8  ..   9  ..  10  .
 2101-     +P2R1314  .8333   1.0000  0.
 2102-     PBAR    1315    13      .3823-1 .0127-4 .11689  .0510-4 0.0             +PAR1315
 2103-     +PAR1315  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1315
 2104-     +P2R1315  .8333   1.0000  0.
 2105-     PBAR    1316    13      .4950-1 .0165-4 .28300  .0660-4 0.0             +PAR1316
 2106-     +PAR1316  .0000   .0000   .0100   .0000   .0000   .0000   .0000   .0000+P2R1316
 2107-     +P2R1316  .8333   1.0000  0.
 2108-     PBAR    2001    11      .2      .16667-3.2333333.66667-30.0             +PAR2001
 2109-     +PAR2001 0.     0.      .05     0.      0.      2.      .05     2.      +P2R2001
 2110-     +P2R2001 0.83333 0.83333 0.
 2111-     PQUAD1  301     113     .252    163     .13336-210      .21     .0      +Q301
 2112-     +Q301   0.0     -.126
 2113-     PQUAD1  1113    113     .1365   163     .21194-310      .11375  0.0     +Q113
 2114-     +Q113   0.      -.06325
 2115-     PQUAD1  1216    216     .168    266     .39514-310      .140    0.0     +Q216
 2116-     +Q216   0.      -.084
 2117-     PTRIA1  145     113     .252    163     .13336-210      .21     .0      +T145
 2118-     +T145   0.0     -.126
 2119-     PTRIA1  149     113     .168    163     .39514-310      .14     .0      +T149
 2120-     +T149   0.0     -.084
 2121-     PTRIA1  289     289     .252    163     .13336-210      .21     .0      +T289
 2122-     +T289   0.0     -.126
 2123-     PTRIA1  1011    11      .050    11      .10417-411      .043    0.0     +T011
 2124-     +T011   0.      -.025
 2125-     PTRIA1  1104    104     .042    154     .61740-510      .035    0.0     +T104
 2126-     +T104   0.      -.021
 2127-     PTRIA1  1105    105     .0525   155     .12059-410      .04375  0.0     +T105
 2128-     +T105   0.      -.02625
 2129-     PTRIA1  1106    106     .0630   156     .20837-410      .0525   0.0     +T106
 2130-     +T106   0.      -.0315
 2131-     PTRIA1  1107    107     .0735   157     .33089-410      .06125  0.0     +T107
 2132-     +T107   0.      -.03675
 2133-     PTRIA1  1108    108     .0840   158     .49392-410      .070    0.0     +T108
 2134-     +T108   0.      -.042
 2135-     PTRIA1  1109    109     .0945   159     .70326-410      .07875  0.0     +T109
 2136-     +T109   0.      -.04725
 2137-     PTRIA1  1110    110     .1055   160     .96469-410      .0875   0.0     +T110
 2138-     +T110   0.      -.0525
 2139-     PTRIA1  1113    113     .1365   163     .21194-310      .11375  0.0     +T113
 2140-     +T113   0.      -.06825
 2141-     PTRIA1  1204    104     .042    154     .61740-510      .035    0.0     +T204
 2142-     +T204   0.      .021
 2143-     PTRIA1  1205    105     .0525   155     .12059-410      .04375  0.0     +T205
 2144-     +T205   0.      .02625
 2145-     PTRIA1  1206    106     .0630   156     .20837-410      .0525   0.0     +T206
 2146-     +T206   0.      .0315
 2147-     PTRIA1  1207    107     .0735   157     .33089-410      .06125  0.0     +T207
 2148-     +T207   0.      .03675
 2149-     PTRIA1  1208    108     .0840   158     .49392-410      .070    0.0     +T208
 2150-     +T208   0.      .042
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B/AL WING STATIC ANALYSIS, EXP. PROP.                              NOVEMBER   2, 1978   NASTRAN 12/16/77     PAGE      46
SKIN CHANGES OF 10-31-78 + NEW G11 OF ELEM 289+290(11-2-78)

                                        S O R T E D   B U L K   D A T A   E C H O
               CARD
               COUNT        .  1  ..  2  ..  3  ..  4  ..  5  ..  6  ..  7  ..  8  ..  9  ..  10
               2151-        PTRIA1  1209    109     .0945   159     .70326-410      .07875  0.0     +T209
               2152-        +T209   0.      .04725
               2153-        PTRIA1  1210    210     .105    260     .96469-410      .0875   0.0     +T210
               2154-        +T210   0.      .0525
               2155-        PTRIA1  1211    211     .1155   261     .12840-310      .09625  0.0     +T211
               2156-        +T211   0.      .05775
               2157-        PTRIA1  1212    212     .126    262     .16670-310      .105    0.0     +T212
               2158-        +T212   0.      .063
               2159-        PTRIA1  1216    216     .168    266     .39514-310      .140    0.0     +T216
               2160-        +T216   0.      .084
               2161-        PTRIA1  1513    113     .2730   163     .16955-210      .2275   0.0     +T513
               2162-        +T513   0.      -.1365
               2163-        SEQGP   181     112.1   182     112.2
               2164-        SPC1    2       2       112
               2165-        SPC1    3       3       16      40      64      88      112
               2166-        SPC1    15      15      11      12      35      36      59      60      +UEOD
               2167-        +UEOD   83      84      107     108
               2168-        SPC1    30      3       16      112
               2169-        SPC1    130     3       15      39      63      87      111
               2170-        SPCADD  10      2       15      3
               2171-        SPCADD  11      2       15      30
               2172-        SPCADD  12      2       15      130
               2173-        TEMPD   600     600.    75      75.
                            ENDDATA

          **NO ERRORS FOUND - EXECUTE NASTRAN PROGRAM**

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*** SYSTEM INFORMATION MESSAGE 3107.  EMGOLD IS PROCESSING ELEMENTS OF TYPE = 34, BEGINNING WITH ELEMENT ID =      501

*** SYSTEM INFORMATION MESSAGE 3113, EMGPRO PROCESSING SINGLE PRECISION ELEMENTS OF TYPE    10 STARTING WITH ID        1

*** SYSTEM INFORMATION MESSAGE 3113, EMGPRO PROCESSING SINGLE PRECISION ELEMENTS OF TYPE    19 STARTING WITH ID      289

*** SYSTEM INFORMATION MESSAGE 3107.  EMGOLD IS PROCESSING ELEMENTS OF TYPE = 19, BEGINNING WITH ELEMENT ID =      289

*** SYSTEM INFORMATION MESSAGE 3113, EMGPRO PROCESSING SINGLE PRECISION ELEMENTS OF TYPE     6 STARTING WITH ID        1

*** SYSTEM INFORMATION MESSAGE 3107.  EMGOLD IS PROCESSING ELEMENTS OF TYPE =  6, BEGINNING WITH ELEMENT ID =        1
                                            METHOD 1 NT,NBR PASSES =    1,EST. TIME =      1.4
                                            METHOD 3 T ,NBR PASSES =    1,EST. TIME =       .1
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